

FIGHTING A FIRE



CHARLES T. HILL



FIGHTING A FIRE



A NEW YORK FIRE.

FIGHTING A FIRE

BY
CHARLES T. HILL

WITH ILLUSTRATIONS
FROM DRAWINGS BY THE AUTHOR

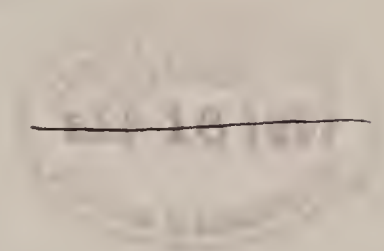


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TO THE
OFFICERS AND MEMBERS
OF THE FIRE DEPARTMENT OF GREATER NEW YORK
THIS LITTLE BOOK IS
DEDICATED,
IN GRATEFUL ACKNOWLEDGMENT OF ASSISTANCE
GIVEN THE AUTHOR IN HIS ATTEMPT TO RE-
LATE THEIR EXPERIENCES AND THEIR
ACHIEVEMENTS IN FIGHTING FIRE,
AND IN SAVING LIFE AND
PROPERTY.

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FIGHTING A FIRE



FIGHTING A FIRE



NEAR the door of every engine-house there is a railed-off space, at the end of which stands a small desk with a gas-jet beside it. On the desk is a large book—known officially as the “house-journal.” In this book is kept a detailed record of all the fires this company has taken part in extinguishing, and it also contains other memoranda in connection with the working of the department. At the desk sits a fireman, reading a paper, perhaps, or maybe putting down in the journal the record of some fellow-fireman who has just gone off duty for a short time, first having obtained the permission of the company’s captain. Near by, somewhere on the apparatus-floor, possibly another fireman may be found cleaning out the stalls of the horses, or keeping bright the metal-work on the swinging-harness, but ready in an instant to assist in hitching up the horses should a “call,” or an alarm, come

ringing out from the array of instruments ranged along the wall near the desk.

The man sitting at the desk is the "man on watch," or "house-watchman," as he is called. One is on duty all the time, alternating with other members of the company, the day's length being divided in five watches, as follows: from 8 A. M. till 1 P. M.; from 1 till 6 P. M.; from 6 P. M. till 12 midnight; from 12 M. till 6 A. M.; and from 6 till 8 A. M. (the "dog-watch"). Two men are on watch at the "last watch," or that one from 12 midnight till 6 A. M., to facilitate the hitching up of the horses, the rest of the company being in bed.

Let us look at the various instruments for receiving the alarm. They are not many, and are very interesting. I shall describe them without using any technicalities, for I know very little about them technically, but I will try to explain what an important part they take in aiding the firemen to respond to an alarm of fire.

First, at the lower right-hand side, on a black walnut base-board, is placed the instrument officially called the "combination," and by the firemen termed the "joker." Why "joker" I do not know; but it is called the "combination" because it combines both the bell for receiving the alarm,

and the "trip," or device for mechanically releasing the horses, which I shall describe further on.

This is the first bell to ring the alarm, or number of the station whence the alarm is sent; but before it rings there is a slight "click" heard in the Morse instrument placed above it. This might be called a "warning bell," and by the ordinary listener would not be noticed at all; but to the quick ear of the man on watch, and the equally well-trained ears of the horses, there needs no second stroke to tell them that an alarm will follow. This click is caused by the opening of the electric circuit in which the station is situated.

Beside the combination-bell, or joker, there is a small weight that slides up and down a brass rod. It is held in place at the top by a catch connected with the hammer of the bell; and, as this hammer draws back to make the first stroke of the alarm, it releases this weight, and the weight slides down the rod. Being attached by a little chain to a lever projecting from the side of a clock hanging beside it, the weight, as it falls, pulls this lever down and stops the clock, thus showing at what instant the alarm was received.

At the bottom of the rod there is a very large lever set with a trigger-like catch, and connected

by wires underneath the floor with the stalls of the horses. In the side of each stall there is a sliding bolt to which is fastened the halter-strap, or chain, that keeps the horses in their stalls. These bolts are connected by the wires with one end of the lever, and to the other end is attached a heavy counter-weight, also under the floor. The trigger-like catch is so adjusted that it just over-balances this weight when the "trip" is set. When an alarm begins to ring, the same falling weight that stops the clock strikes this trigger; this "trips" the lever, it flies up, the bolts are pulled down in the stalls, and the horses are released the instant the first tap on the gong is heard.

Above the combination is placed a Morse instrument—sounder and key—and beside it a telephone, to communicate with headquarters or with other companies, and also a few frames containing a list of stations that particular company goes to, on receiving the first, second, or third alarms.

At the other side, nearly over the desk, is placed the big gong, twelve or fifteen inches in diameter, and very loud-sounding. This begins to strike when the smaller gong has rung off two "rounds,"



THE HOUSE-WATCHMAN AND THE GONGS.

or the number of the box twice, and should the man on watch have failed to count the number of the station on the joker, he will have no difficulty in getting the number from the big gong, for it strikes slowly — that is, slowly in comparison with the joker, which rings the number out very fast. The large gong is very loud, and can be heard a block away. The company receives four rounds on the small bell and two on the big bell; or, more correctly speaking, the number of the station is rung four times on the joker and twice on the big gong. But it is rarely that the firemen have to wait to get the signal from the latter, for before the small bell has rattled off its second round the engine has rolled out of the house and they are on the way to the fire.

A light is burning brightly beside the desk; inside the railed inclosure a fireman sits reading a newspaper, and with one hand shades his eyes from the bright glare of the gas-jet in front of him. Maybe he is dozing; but if he is taking a quiet nap, he is sleeping as General Grant did on the eve of battle — with one eye open. In the rear of one of the stalls another fireman, pitchfork in hand, is shaking up and arranging the hay that

forms the bed for the horses. A few passers-by stop for a moment to look in through the partly open doorway at the spick-and-span apparatus always in such perfect order: the harness swinging evenly over the pole of the engine, the end of which, butted with brass, shines like polished gold. Already some of the horses are down on their haunches nibbling at a bit of hay, and preparing to go to sleep. The telegraph-instruments at the side keep up an endless clicking and tingling, and but for these sounds all would be very quiet. Overhead, in the "bunk-room," or dormitory, the men are preparing to "turn in," but a few, in one corner, lingering to watch the result of an exciting game of checkers between two recognized champions of the company.

Click! — one stroke on the instrument, followed by a quick *tang-tang-tang-tang-tang* — a pause, *tang-tang-tang* — a pause, *tang-tang* on the joker — the man at the desk springs to his feet and shouts, "Get up!" — the weight has fallen, the lever flies up, the horses are released. They need no command, but are on their feet even before the fireman calls, and rattle out of their stalls and under the swinging-harness. *Snap, snap!* go the collars about their necks, and then



HITCHING UP.

the "bit-snaps" are locked at each side in an instant. *Thud, thud!* come the men, sliding down the poles at both sides of the house, and striking the rubber pads placed below. Bounding from there to the floor, they climb to their various places upon the apparatus.

The driver has jumped to his seat on the engine and snaps in place the belt that secures him there; the engineer, and the foreman also, spring on the engine; and the engineer with one foot shoves down a lever in the floor that shuts off connection with a boiler in the basement. This boiler always keeps up about ten or twelve pounds of steam-pressure in the engine. The engineer snatches up a lump of oil-soaked waste, lights it, and throws it in the furnace of the engine, amid the wood piled there; the driver leans forward, and, taking up the reins, gives a slight pull toward him. This pull releases a catch in the iron framework that holds up the harness, and this frame flies up to the ceiling, letting the harness fall on the backs of the horses.

The man on watch shouts to the driver the number of the station and its locality, the big doors slide open — and the engine dashes off to the fire!

The same manœuvers have been going on behind the engine, where the “tender,” or hose-carriage, is hitching up, and it is after the engine as fast as the horses can fly.

I have leave to jump on and go with them. *Rattlety-bang* we pound over the cobbles, and then — with a *bump!* we go over the flagging at the crossing — *swish!* around the corner with a turn so quick it makes my hair stand on end, and we “straighten out” for a run along the avenue.

We are now in the wake of the engine, in a cloud of smoke and cinders pouring from the top of the latter, and we are gaining every second. The lamp-posts — the shop-windows — the crowds of shouting people — pass back of us like a quickly flying panorama. The horses seem fairly to fly. Around this wagon we swing, then pull up for another until a half-frightened driver can turn his startled horse out of our way, and then we put on a burst of speed to make up for the delay.

I assure you, it takes a cool head and a quick eye to drive a pair of fire-horses.

We are quickly almost up with the engine, for our horses have less weight to pull, and soon we have no difficulty in passing it, which we do with a shout. Now we are nearing the fire, the men

“ROLLING TO THE FIRE.”—AT FULL SPEED.



beside me are leisurely pulling on their rubber coats and putting on their fire-hats, and I — well, I am holding on for dear life, expecting every moment to be thrown off behind in a heap. Not that I am afraid — oh, no! — but you see, I am the “thirteenth” member of the company (so every friend, or hanger-on, of a company is called, there being twelve regular members — a foreman, an assistant foreman, and ten men), and I have to take very good care of myself in consequence, for that is considered an unlucky number to bear; and if anything happens, it may happen to me.

A big cloud of black smoke, a group of excited people, a policeman running toward us, indicate the location of the fire. A fireman jumps from the tender, and, running ahead of us, looks for the nearest hydrant. About eighteen or twenty feet of the hose has been run off the reel, and a man stands with it in hand ready to throw it to the man at the hydrant. Another tender has turned the corner ahead, and is making with break-neck speed for the same pump. Can we reach it first?

Our driver leans forward and urges the horses onward, giving them full rein, and they jump through the air, pulling the tender along with

great jerks. We near the hydrant; our man stands there ready, waving his wrench in the air and shouting to us. The other tender is advancing with frightful rapidity, but they are just a *little* too late!

We fly past the hydrant, the hose is thrown to our man, he takes a turn about the pump, and we "stretch in" to the fire. This gives us "first water," as it is called, and the foreman of our company takes precedence of the foremen of all other companies on account of being the first to arrive, and has "charge of the fire" until a battalion-chief arrives, when the foreman turns the command over to him.

Our captain has jumped off the engine at the corner, and, running ahead, is at the entrance to direct us when we arrive.

Our engine follows quickly, and, dashing up to the hydrant, the hydrant-connection is unshipped from its place in the long tubes that hang over the wheels on both sides of the boiler, and is fastened to the hydrant and then to the pump of the engine. The hose, taken around to the other side of the engine, is rapidly screwed to the pump, and we, having pulled up in front of the fire, hastily roll off from the reel the number of lengths of



"STRETCHING IN."



hose needed; a nozzle is placed at the end, and we are all ready when the order is passed to the engineer to "start the water."

It is a cellar fire,—a bad one,—and in a factory. Clouds of dense black smoke pour up from the basement, and out of every crevice around the big folding-doors that form the entrance. Bits of falling glass tell us that the pressure of smoke and of the gas generated by the combustion going on within the building is beginning to break the windows in the upper part, and if we are not active the flames will get the better of us. Our foreman is everywhere at once, directing the captains of the arriving companies to their different positions.

Two more tenders have rolled up and deposited their complement of hose ready to be manned and directed against the fire. A "truck," or hook-and-ladder, company thunders upon the scene, with its load of heavy ladders and firemen's implements, weighing over four tons. Dropping from it as it slows up, men come running over to our aid armed with axes and hooks, ready to make an opening in the building so that we may get at the seat of the fire.

The watchman of the factory cannot be found.

Our foreman shouts, "Quick! the battering-ram. Break open the big doors!"

One is quickly unshipped from its place underneath the truck, and, with a man on each side, at the command of the captain the ram is lunged forward at the big doors. Crash!—the doors quiver under the impact of the combined weight of the solid mass of iron and the two heavy men. A few more blows and the locks give way, the doors fly open, and into the black, stifling smoke we force our way, dragging the heavy hose with us.

We can see no fire,—nothing but thick, dense smoke choking our throats, and making the water run from our eyes in streams. Meanwhile the men from the truck-company have been at work with the butt-ends of their axes, and have broken open the deadlights and grating in the front over the basement and the basement doors. The fire having shown up there, we are ordered to "back out" and "work in" the basement—an order easily given, but not so easily obeyed; for the smoke is now thick and so stifling that people in the crowd on the other side of the street are obliged to beat a quick retreat before it. But we firemen are there to obey commands, not to question them, and down we go.



"OPENING UP."

A shower of glass greets us as we back out, for it is now raining glass and bits of the window-frames from above. Ladders having been raised to the upper floors, the truck-men are making an opening for the pipe-men of other companies, that they may be on hand should the fire get above the first floor. Another shower, this time of red-hot plaster, greets us as we work our way into the basement; and the fire, now spreading all over the ceiling, brings more down around us. The heat is frightful there, and we turn our fire-hats back foremost to protect our faces as best we can. We slash the water around, knocking over burning beams and piles of packing-boxes, the hose squirming and quivering under the pressure of the tons of water being forced through it every minute: the united strength of three or four men is required to control it. All at once one of our number gives a gasp and tumbles down at our feet, face forward, in a pool of dirty water and plaster, overcome by the smoke and heat. Another drops his hold upon the hose and stoops to assist his fallen comrade. It is now red-hot in the basement, and we cannot breathe much longer. If we do not back out soon, it will be all over with us; but firemen, in the enthusiasm and excitement of

the moment, hate to retreat until actually driven out, so we still hold our position. At last we cannot stand it, and we retreat to the doorway.

The fireman who was overcome, assisted by one or more companions, reaches the foot of the stairs. A battalion-chief in command on the pavement above, seeing our position, shouts, "Here! A man hurt! Down in the basement!" In a second a dozen brave fellows dash down the steps, and, lifting up our injured comrade, carry him tenderly up to the street, and then over to one of the patrol-wagons, where, with plenty of fresh air and brisk rubbing, he is soon brought to his senses.

The chief follows the men down the stairway, and, giving one look at the blazing cellar, says, "This is too hot for you; back out, quick!" We need no second command, but get up the stairway as fast as we can. As we reach the foot of the stairs in our retreat, *crash!* comes the floor down where we have been standing, and our place is taken by a packed-in mass of blazing timbers. A few seconds later, and we might have been under that mass.

The water is now all directed at this point, and the fire in this part of the building is slowly conquered. It has reached the first and second floors,

THE BATTALION-CHIEF ARRIVES AND TAKES COMMAND.



however, by way of the stairways and elevator-openings, and the men placed there to receive it are having a hard tussle, and although they are making a brave fight, it is gradually getting the better of them.

Soon they too are forced to retreat before the mass of fire that slowly drives them back, for the building is stored with inflammable material, and, getting a little headway, the flames spread rapidly.

Despite all their efforts, it reaches the two upper floors, and finding no vent, it spreads over the ceiling of the top floor, and breaks from the front windows with renewed vigor. It makes a more formidable showing here than it did in the cellar; but we have the force ready to fight with, and will make short work of it.

Our foreman, on the arrival of the first battalion-chief, has turned the command over to him, and the chief has sent out additional alarms, second and third. We now have massed about the fire twelve engine-companies, four truck-companies, about four chiefs, a deputy chief superintendent, a chief superintendent (the head of the department), and two sections of the Insurance Patrol. The Patrol men have covered up the office furniture in the front office with their tarpaulins, and

are ready to save additional property should the fire spread. There is also a fuel-wagon dashing here and there among the engines, to supply them with coal. In all there are about two hundred men at work.

A water-tower too has arrived, and being raised in front of the building, at the outbreak in the upper floors it is immediately put to work. The streams from three or four engines are fed into the supply-pipes at the sides, and soon a steady stream of about 2000 or 2500 gallons of water per minute is being thrown upon the flames—a deluge that no body of fire can long withstand.

Companies have been sent to the rear to work in from the next street; “rollers” or “hose-hoists” (a device used on the roofs or cornices of houses to protect the hose when it is pulled up from the street, to prevent their cutting it) have been placed on adjoining houses, and lines of hose have been run up there to fight the fire from that point. Short ladders have also been pulled up to the roofs of adjoining buildings and raised to the side windows; and lines of hose are put to work there. “Cellar-pipes” are brought into play to pour streams of water along the ceiling of the cellar. Even in the house adjoining the one on



“HITTING THE FIRE.”

fire, men with a battering-ram are at work breaking a hole through the foundation-wall, so that streams of water may be directed at the fire from that point, to drown it out.

Men from the truck-companies have been working on the roof, at the outbreak of the fire, cutting it open that the smoke and gases may escape and better air come to the men working within the building. The flames, driven back from the front of the building, find these openings and vent their fury through them; and, the massive stream of the water-tower beginning to tell in an effective manner, we soon have the satisfaction of seeing the last squirming flame flicker and go out before the deluge of water that is being poured on it from all points.

Before long nothing but a hissing, smoldering mass is left. The ruin is thoroughly soaked and washed down before the tired firemen are ordered to "shut off."

The extra companies sent for by the last two alarms are now ordered home, and the dark street is full of men in long rubber-coats carrying lanterns. They go about amid the twisted labyrinth of hose, "disconnecting" or unscrewing the different sections of hose, that the water may drain

from them before they are "taken up" and rolled upon the reel of the tender.

Being the first company to arrive, we are the last to leave, and we remain until with men from the truck-company we thoroughly go over the building from top to bottom, tearing down door-jambs and window-casings, and pulling up parts of the floor—"overhauling," as it is called, that no unseen spark may be left smoldering to break out anew after we have left; for the battalion-chief under whose command we are now working is responsible for the fire, and should it start up again, it would go hard with him before the commissioners, by whom he would be called to account.

Soon we, too, are "disconnecting," and when the different sections of hose have been hauled up behind the tender, we screw them together again and they are wound upon the reel, being pulled taut over the iron roller at the back part as they are reeled in. This thoroughly squeezes out all the remaining water from them, and winds the hose evenly on the reel.

We are now "rolling home," dirty, begrimed, and partly soaked, and followed by a crowd of boys about a mile long. When we reach the engine-

“TAKING UP.”



house, we take off from the reel all the lengths of hose we have used, including three or four additional lengths to make sure of getting every length that contains any water. The wet lengths are hung up to dry in a long shaft in the engine-house called the "hose-tower," while dry lengths take their places. Water left in the hose causes a mildew that rots and destroys it very quickly.

We wash down the engine and tender; a new fire is made ready in the furnace of the former; the horses are put back in their stalls, and, after the engine and tender have been rolled back to their respective places on the floor, they are brought out under the iron framework and the swinging-harness is hoisted into place again. The clock is started once more and set right; the weight is again placed at the top of the sliding-rod; the lever or "trip" at the bottom is set, and the horses are fastened in their stalls.

Then the captain steps up to the telegraph-instrument, and, clicking off a few clicks, informs headquarters that he is "at home" once more, and ready to receive another "call."

A SCHOOL FOR FIREMEN



THERE is perhaps no branch of the public service in our greater cities that awakens such a responsive chord in the hearts of all who admire bravery and daring, as the Fire Department.

Because of our peaceable relations with foreign nations we do not require a large standing-army, and for that reason there are fewer soldiers to admire than in European countries. But in our brave firemen, ever ready to respond to the call for help, to face danger and perhaps death at any moment, we find a class worthy of hero-worship, and deserving of whatever praise they may receive.

The rattle and dash of the engines, the clanging of the bells, and the mad gallop of the horses on their way to a fire are always exciting, and staid indeed must be the boy or man who can resist the temptation to follow them to the scene of action.

When we watch the men working at a fire, occupying most perilous and hazardous positions, on the roofs of buildings and upon ladders, suffering tortures from smoke and flames, we can scarce suppress exclamations of admiration for the daring manner in which they so coolly face what seems to our eyes almost certain death.

Every city in the United States shows local pride in its firemen. Each claims that its department is one of the best, if not the best, in the country. The rivalry between some of the cities is at times quite amusing, and there is much discussion upon the merits of their own firemen; but New York City undoubtedly occupies to-day the enviable position of having, all things considered, the most thoroughly equipped and most efficient fire-service in the world.



A CHAIN OF LADDERS.

The apparatus is of the best. The horses, selected with care and judgment, are magnificent animals; and the men, picked from those thought to be best adapted for the work they must perform, are subjected to a most rigid physical examination before they are admitted to the service, and afterward are trained in a school of instruction at Fire Headquarters that is complete in itself.

A description of this school will no doubt be found interesting, for it is mainly due to the efficiency of this branch of the service that the Fire Department of New York stands to-day at the head of the departments of the world. The graduates of this school are a hardy, muscular set of men, well trained in the perilous work that they must encounter in active service. They are not only taught how to handle intelligently all the appliances used in extinguishing fires, but—what is more important—they receive a thorough training in the use of the many modern devices for saving lives at fires. The numerous heroic rescues made by firemen every year in New York City bear evidence to the fact that the instruction they have received here is well applied.

The school was organized in February, 1883,



CLIMBING "EN ÉCHELON."

primarily for the purpose of instructing the men of the different companies in the use of the “scaling-ladder,” which had then just been introduced in the department. It gradually became enlarged in its scope, however, until, with the completion of the new Fire Headquarters building in January, 1887, it became a general school of instruction — not only for the new men admitted on trial (called “probationary firemen”), but for the men already in service — in the use of all life-saving apparatus, and in the many appliances used for fighting a fire.

Before they had this new building, in East 67th Street, the companies were taught the use of the scaling-ladders and “life-net” at an old sugar-warehouse near the foot of West 158th Street and the North River, and here the classes numbered nearly sixty men at a time. But this building was in an out-of-the-way place, and lacked the facilities necessary for instructing the men in raising large extension-ladders, and in the use of the many new tools then being added to the department.

When the new Fire Headquarters building was being completed, a yard designed for this purpose was built at the back of that building. This yard is about one hundred feet square, being well ce-

mented and drained, so that water can be used in the lessons. Here "company drills" were introduced — companies being summoned unexpectedly from different parts of the city, just as they would be called to an actual fire.

When they arrived the engines were started and the men put through all the manœuvres of battling with the flames. The hose was dragged up the staircase to the top of the building, water was started or shut off, and large quantities were used in the different movements executed in the yard or from the windows at the rear. The men were thus made acquainted with every appliance carried upon the apparatus, and the system was perfected in every detail.

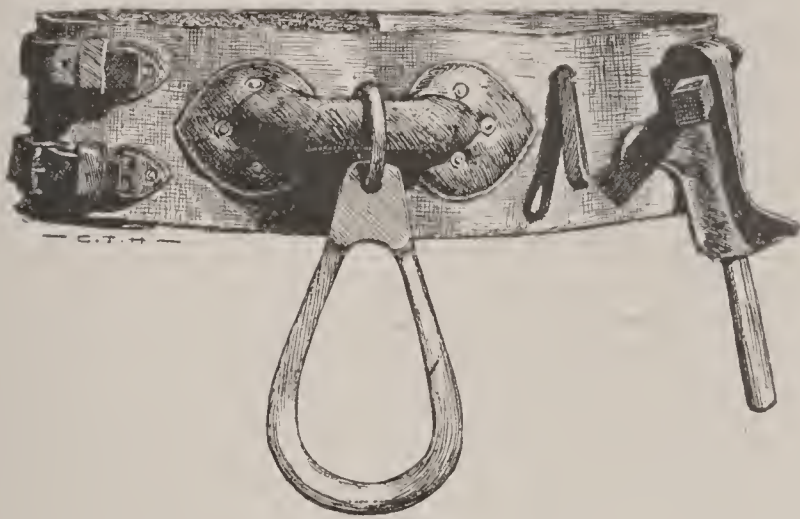
Companies received ratings on the books kept by the instructor according to the proficiency they showed at the drills; and some idea of what effect these drills had in improving the service may be gathered from the fact that, when they were started, of the eighty or more companies in the department there were about twenty-one companies in the first grade, nineteen in the second, and forty in the third or lowest grade. After three years of instruction, there were only four or five in the last grade, about fifteen in the second,



"BUILDING A CHAIN."

and fully sixty received the rating of first-grade companies.

It is here, in this yard, where these company drills played so important a part in bringing the New York department to its present point of perfection, that the recruit receives his first instruc-



THE BELT, SHOWING THE "SNAP" HOOK AND HATCHET.

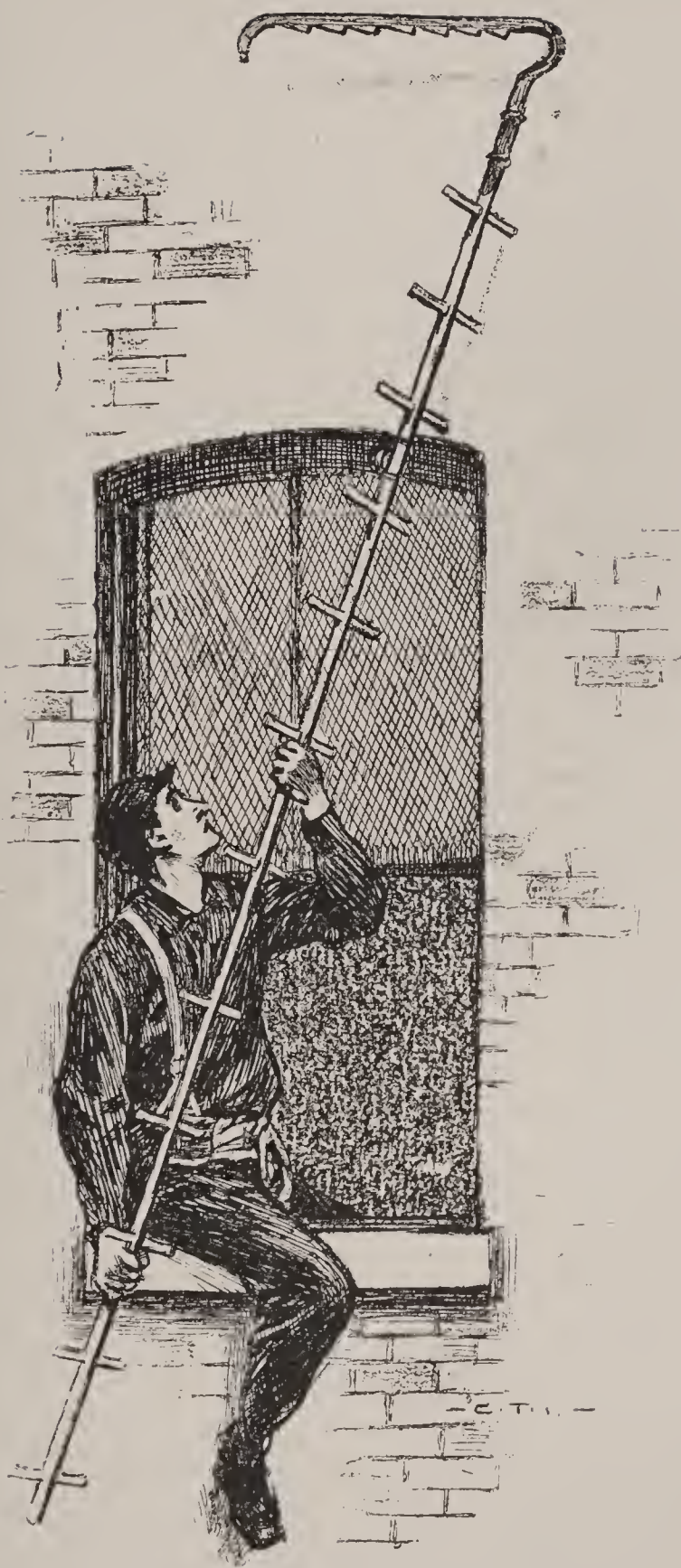
tion in the use of the scaling-ladder, the life-line, and the life-net.

After the new fireman has passed the civil-service and physical examination in the gymnasium on the fifth floor of the building, he is put into one of the classes drilling in the yard, and gradually "broken in," being taught how to handle, raise, and balance the ladders before he is allowed to use them at all. Since the ladders weigh from

twenty to sixty-five pounds, and are from fourteen to twenty feet in length, it can be seen that it is not easy to manage them. After the novice has mastered this, his opening lesson, he is allowed to go up to the first window, and then, as his confidence increases, to the second, and so on to the top; but he is kept at each window until all nervousness has passed away, for the recruit is at first very nervous, and, as the instructor laughingly remarks, "You can hear his teeth chattering a block away!"

He is soon skilful, and when he finds he can gain the fourth and fifth story with comparative ease, he looks down upon his less proficient companions and laughs at their timidity.

As he becomes more familiar with the handling of the ladders, he is taught how to "build a chain"—a line of ladders from the street to the roof, with a man at each story. In this drill, when the first man reaches the top floor, he fastens himself firmly to the ladder he is on, by means of a large steel "snap" attached to a stout canvas belt which each wears. Then, reaching down, he brings up another ladder; and as he passes it out and over a cornice projecting some three feet from the building, and, releasing himself from his own lad-



USING THE SCALING-LADDER — "STRADDLING SILLS."

der, climbs nimbly up this frail-looking affair, swinging to and fro in mid-air, the looker-on almost holds his breath, and does n't wonder at the "teeth-chattering" referred to by the instructor in his remarks on the school.

This exercise is not indulged in, however, until the class has about finished its course at the school, and all are thoroughly proficient in handling the ladders. It is a most thrilling and exciting drill to watch, and you cannot help a throb of admiration for the nerve and pluck of men who perform it.

"Straddling sills" is the next instruction the fireman receives. In this drill he sits astride a window-sill, and, holding himself in place by the pressure of his knees against the sides, he pulls up a ladder, and, carefully balancing it, passes its hook into the window above. Then climbing to that window, he goes through the same manoeuvre, and so on to the top, and then down again.

By this movement one man with one ladder could reach any floor in a burning structure, and by letting down a small rope that he carries in his belt, haul up a "roof-line,"—that is, a heavier rope,—and thus lower a number of people to safety.

Then comes "standing on sills." This drill re-

quires two men. One, standing on the sill of a window, is held firmly in place by another inside the window who pulls stoutly upon the steel snap in his belt. The outside man reaches down, and, pulling up the ladder, places it in the window above. Both then climb up, and their positions are reversed. They are kept at these different exercises until they can perform each quickly and without any hitch, and they leave the school trained in every way.

To vary the monotony of the ladder drills, between lessons the men are taught how to come down a rope alone, or to bring a person with them. Two turns of the roof-line are taken, inside and around the steel snap on the belt, which exert enough friction to act as a brake, and with a slight pressure of the hand on the rope below the snap, the fireman can perfectly control the speed of descent. Four turns are taken if they have to bring a person down with them.

Next in the series is found a movement that requires a cool head and plenty of nerve on the part of the recruit. It is known as climbing "en échelon." He hooks his ladder in a window at one side of the one just above him, and, while the ladder swings like a pendulum into its place, he climbs



"STANDING ON SILLS."

up. Though this appears a risky feat, and one that needs considerable confidence and proficiency, it is a valuable accomplishment. Should the fireman in actual service attempt to rescue one from the upper part of a building, and find above him a window so charged with flame that he cannot enter, it is by this feat that he passes up and around that window and thus reaches by a round-about course the floors above.

When the life-net is brought out and held by fifteen or twenty of his companions, the recruit is taught how to jump into this last resort of the life-saving corps, and — what is more important — he himself learns how to hold it in turn to receive one of his companions.

The net is of rope, circular and woven from a central ring. The strands radiate regularly from this center to the different handles attached to the rim or edge so as to equalize the strain when a body strikes the net.

When firemen jump they are taught to come down in such a way that by throwing their feet out they may land in a sitting position. Landing in this manner, they escape the possibility of their legs or arms going through the net and being injured by striking the ground — a point that

is not out of place for every one to know. Each member of the party takes a turn at jumping into and at holding the net; and by this means there is no shirking or carelessness in performing that part of the lessons, for every pupil knows that his turn to jump will come sooner or later, and the application of the "golden rule" is brought forcibly to his mind. Each man is very particular to do his share of the work with painstaking care and attention. As the instructor put it: "I make each man jump into the net, and then there's no 'playing soldier' in holding it — no, sir!"

In holding the net, the men brace themselves with one foot forward, and, bringing the arms up, half bent, they grasp the handles of the net firmly in each hand, thus bringing the rim or outer edge of the net about on a level with their shoulders, and as high as it can possibly be kept from the ground. They then watch for the descending body, and as it is about to strike they all stretch together; the arms, being half bent, act as springs, and bring the strain of the falling body on the muscles of their upper arms. Were they to stand with their arms stretched out straight, the shock would be so great that it would pull them off their



CARRYING A MAN DOWN THE "ROOF-LINE."

feet, and might pitch them head first into the net themselves.

They are taught not only how to hold the net, but how to hold it correctly and yet be able to move quickly about in any direction, so that they may catch a person falling or jumping from any window, and may receive him exactly in the middle of the net. This is most important, for at a fire the smoke might be so thick that the one jumping could not see the net, nor those holding it be able to see the body descending. In order to prepare them for such an emergency, a dummy of about the weight of the average person is used. This is thrown from different heights, at a signal from the instructor, and usually in a direction different from that expected by the men.

It is estimated that this dummy, weighing some 150 pounds, when thrown from the sixth floor, strikes the net with a force of 1750 pounds. It can be seen, therefore, that considerable strength must be exerted to keep a body weighing that much from striking the ground when jumping from so great a height. They have to jump about in a lively way to catch it, and if it does not land exactly in the middle of the net, or if it strikes the ground, they get a sound lecturing by the in-

structor, and are kept at it until they are able to catch it exactly in the middle of the net, and without any failures.

This practically finishes the recruit's lessons in the yard. On rainy days, or when it is too cold to work outdoors, he is taken to the gymnasium on the fifth floor, and there learns to handle the many devices used in the department.

He is taught how to "couple" and "uncouple" (disconnect) hose; how to put into service "cellar" and "sub-cellar" pipes for fighting cellar fires; and the use of the "tin-cutter" for opening roofs. He learns about the battering-rams, axes, and hooks, and the hundred and one other appliances carried upon the hose-wagons and trucks.

When his course in the school is finished, and he has received a percentage high enough to qualify him, he is "passed" by the instructor, and assigned to some company in the service—usually to one in a busy district where he will have plenty of experience. Then his actual life as a fireman begins—an experience fraught with many dangers.

But it is rarely that we find our firemen "losing their heads"; and although raising a scaling-ladder to rescue some one amid the confusion and smoke of an actual fire is not at all like practice in the



CATCHING A MAN IN THE "LIFE-NET."

quiet yard at headquarters, with a great big net stretched underneath to catch them should they fall, yet they are always ready and anxious to perform such a duty. Knowing this, the people of a great city like New York may well be grateful to the graduates of this excellent school for firemen.

AN ALARM OF FIRE BY TELEGRAPH



“AN alarm of fire by telegraph !”

How much these few words suggest to the mind: the fright, the confusion, the destruction of property, and the possible loss of life; the puffing engines and the shouting men, the crashing of glass and the splashing of water, and, perhaps, finally the smoldering remains of a once comfortable home laid waste by nature's most destructive element — fire.

All this is mentally pictured when we read the little technical phrase found in the daily ledger kept in every engine-house in New York City.

This book, known as the “house-journal,” contains a record of all alarms of fire received, whether they are fires to which this particular company is called or not, and the exact moment that they were received.

The movements of the officers and men are also

recorded here, the hour and minute of their leaving quarters each day for meals, and the time of their return; and an entry is made of any event pertaining to the workings of the department to which it may be necessary to refer at another time.

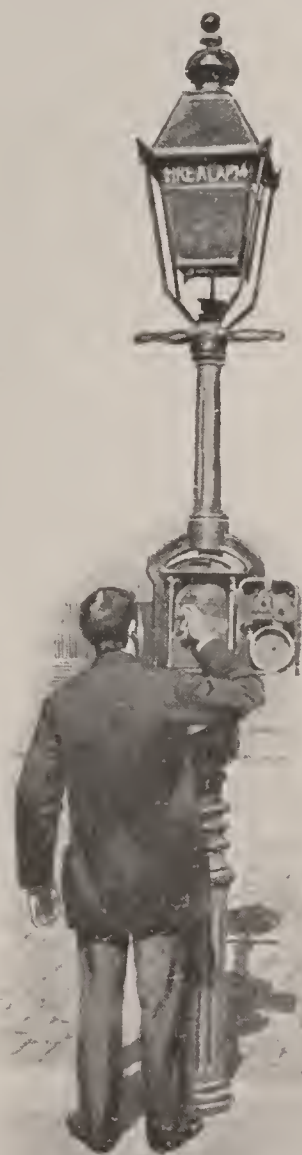
If we look over the pages of one of these house-journals, we shall come to an inscription in red ink, reading like this:

6.15 P. M. : Rec'd an alarm by telegraph from Station 448.

This is an alarm that has come over the wires, but from a box to which this particular company is not called.

In this memorandum 448 is the number of the fire-alarm box from which the alarm was sent—they are known technically as “stations.”

This inscription is unsatisfactory and disappointing, for if we are interested we wish to know more about the fire and what happened there, so turn-



A STREET BOX.
SENDING IN AN ALARM.

ing back a few pages we come to another entry that is more explanatory. It reads somewhat like the following:

10.45 A. M.: Rec'd an alarm of fire by telegraph from Station 357.

Proceeded with apparatus to double hydrant in front of No. 150 W. 16th St., and ascertained fire to be at No. 143 West 16th St.

Reported to Chief of 7th Batt., and was by him ordered to stretch line into basement of house, where a 1½-inch stream was kept 10 minutes.

Company's services being no longer required, was ordered to return to quarters. The following officers and men accompanied apparatus: . . .

Then comes a list of the officers and men going to the fire, and of those who were absent, and a statement of *why* each one was absent, for a fireman is held accountable for every moment of time while he is on duty, and his superior officer must know at all times when he is at a fire; and if he is not, the cause of his not being there. The above entry, like the other, is made in red ink, for all records of fires are made in that color, to separate them from the ordinary routine work, which is inscribed in black.

Few people living in our large cities, with the exception of those actively interested in fire matters, know what careful records are kept of all fires, large or small, or how the movements of every company can be traced from the moment they leave their house in answer to an alarm, until their return, even to the smallest fraction of time. With the aid of the book I have just mentioned, and another one called the "Fire Record Journal," it is possible to trace any particular fire,—to find out the exact moment the alarm was received for it; about how long it took the company to respond; where the hydrant was situated from which they got their water; how many lengths of hose were used; how long the water was kept on the fire; how many gallons of water were consumed (approximately), and many other details. In a busy season, when fires are plenty, there is



KEYLESS BOX, OUTSIDE.

Showing the directions for opening the outer door and for sending an alarm.

as much clerical work required in the different engine-houses, to keep these books in order, as there would be in taking care of the books of a large business firm.

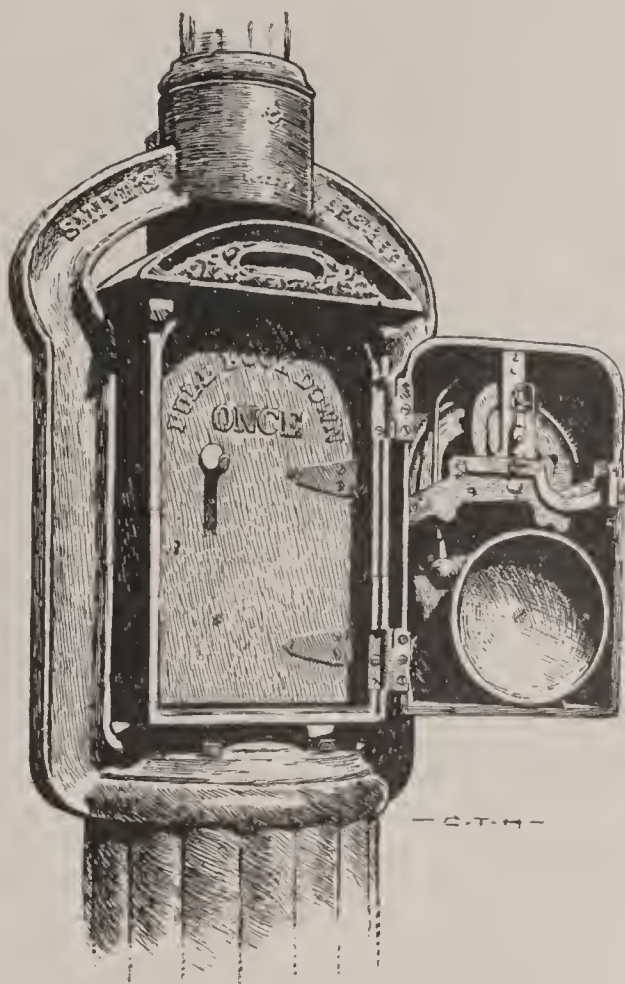
Now, let us trace or follow up this particular alarm of fire from station 357 and find out why it was sent out, and how it was conveyed to the firemen, and how they received it. This leads us into the mysteries of the "Fire Alarm Telegraph System," without which the science of fire-fighting to-day—no matter how quick the horses, no matter how complete the apparatus, and no matter how eager the men to respond—would be utterly inadequate.

We will begin by examining the street boxes, or "stations," as they are called, since it is from them that the alarm is first sent. They are found on almost every other corner in New York City, or, at least, within three or four blocks of one another. As practically every city or town of any size in the United States has the same sort of boxes, most readers are probably well acquainted with them, so we will examine only the "keyless box," that is used extensively in New York City.

This box forms part of a lamp-post, the post being so constructed that the box is inserted in

the middle. The box is painted a bright red, and the lamp at night shows a red light, thus making it easily discernible either by day or night. The wires from the box are conveyed down through the center of the post to conduits buried in the street, and thence on to fire headquarters.

White letters on a red pane of glass, in the lamp over the box, give directions how to send an alarm, — the same directions in raised letters are found on the face



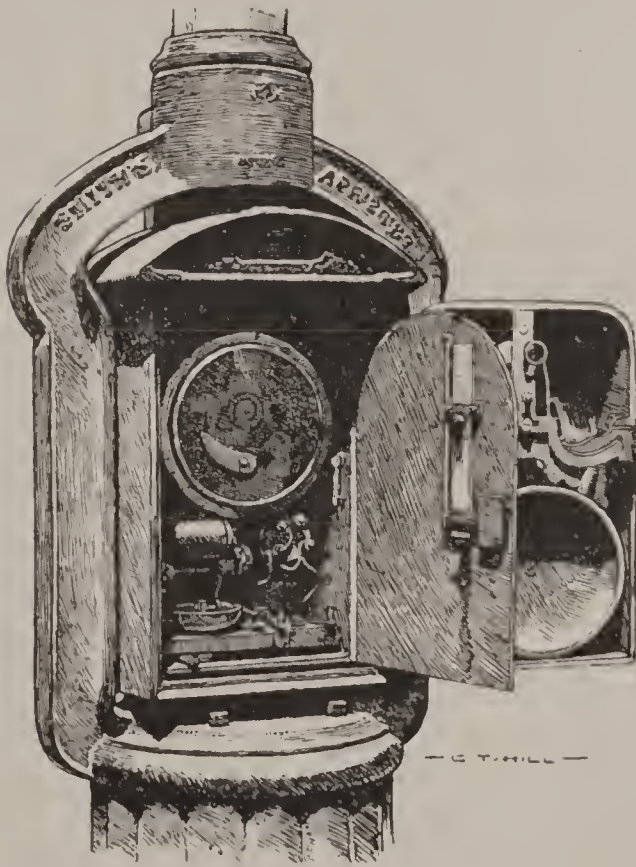
KEYLESS BOX, OPENED.
Showing the inner door, and hook.

of the box. If we turn the large brass handle on the outside as far as it will go, a loud gong will ring inside. This is not the alarm, but simply a warning bell to notify the policeman on the beat that the box is being opened and to prevent the sending in of malicious or false alarms of fire, an of-

fense that is punishable in New York State by a fine of \$100 and one year's imprisonment. Turning this handle as far as it will go opens the outer door, and we find inside another door, with a slot at the left-hand side, and at the top of this slot a hook projecting. By pulling down this hook *once*

and releasing it, we set at work certain clock-work mechanism inside, and this sends in the alarm.

When the first officer arriving at a fire discovers that it is of enough importance to warrant his sending for reinforcements, he opens this inner door and with the "Morse key" to be found inside he proceeds at once to send in a



KEYLESS BOX, INSIDE.

The inner door opened, showing the cam or lever that operates the clockwork, and the Morse key and sounder for sending telegraph messages to headquarters.

second, third, fourth, fifth, or sixth alarm, as the case may be, or a call for any special apparatus that he may need. The inspectors of boxes can

also carry on a conversation in the Morse alphabet with the operator at headquarters on this key and sounder, so we find each box a miniature telegraph station in itself.

Let us examine the causes that led to the sending in of an alarm from box 357, and also what follows the pulling of the hook in one of these lamp-post boxes.

A pan of grease frying on the kitchen range in the basement of a house in West Sixteenth Street boils over and sets fire to the floor. The servants, discovering the kitchen in flames, run screaming from the house. The owner, who happens to be up-stairs at the time, runs down, and seeing the light of fire reflected on the basement stairs, he dashes for the nearest fire-alarm box to send in an alarm. This box happens to be on the corner of Sixteenth Street and Seventh Avenue, half a block away.

Turning the handle around, he opens the outer door, the warning bell rings, he pulls down the hook on the inside door once, and, releasing it, listens. What does he hear? The buzzing of machinery at first, and then "ting, ting, ting!" on a little bell inside. A pause, and "ting, ting, ting, ting, ting!" Another pause, and then "ting, ting,

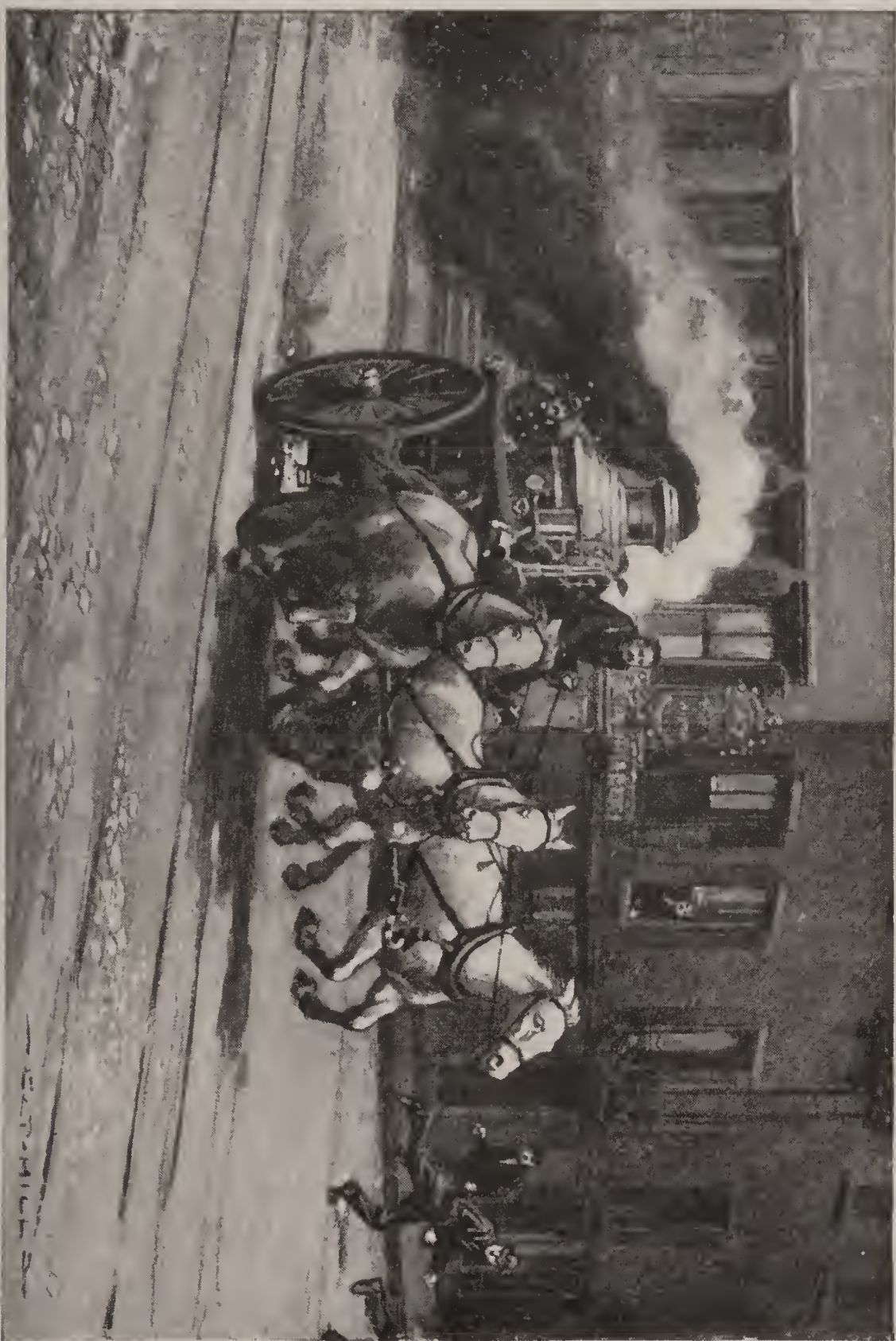
ting, ting, ting, ting, ting!"—357, the number of the box.

This is repeated five times in quick succession, and then the buzzing stops. The alarm has been sent. It may seem like an age to the owner of the burning premises as he stands there waiting for the firemen to appear, but it is a matter of only a few seconds; for within twenty seconds this station number is ringing in a score or more of engine-houses, and within one minute and a half after he releases the hook six companies of apparatus are on their way to this box.

One minute has elapsed since he opened the box,—now a minute and a half.

He looks up and down the avenue, and what does he see?

Turning into Seventh Avenue at the intersection of Greenwich Avenue, five blocks to the south of where he stands, a fire-engine appears, drawn by three plunging gray horses. As it straightens out in the broad avenue, they dash madly toward where he stands. A hose-wagon follows, filled with sturdy men donning rubber coats and fire-hats. The bells of both engine and wagon are ringing furiously, and the whistle of the former keeps up a series of short shrieks.



“A FIRE-ENGINE APPEARS, DRAWN BY THREE PLUNGING GRAY HORSES.”

It is truly an inspiring sight, and he almost forgets the destruction that threatens his home in the excitement of the scene.

As he looks up the avenue he sees approaching from Twentieth Street, four blocks to the north, another apparatus—a heavy affair that sways from side to side as it swings from one car-track to another. This is a “truck” or hook-and-ladder company, and it is preceded by a light wagon containing two men, one driving, while the other looks eagerly ahead for the appearance of fire. This is the chief of the 7th Battalion, who afterward has charge of the fire. Whistles and bells in the two adjoining streets to the north of him tell of the approach of more engines. One is coming from the east, the other from the west. The engine approaching from the east turns the corner of Eighteenth Street, two blocks above, just as the one coming from the south is over a block away. It is now a mad race between the two to see which will first reach the box. The one approaching from the south has the advantage of a clear run up the avenue, however, and arrives at the corner before the other. The man at the box indicates by pointing to his home the location of the fire, and the driver of this engine, who knows the hy-

drants in his district as well as he knows the stations, turns the corner on a run and pulls his horses up beside a hydrant nearly opposite the fire.

Another truck company has followed this first appearing engine, also coming from the south. Another battalion chief has turned the corner of Fourteenth Street, coming from the east, and following him a strange-looking apparatus—a four-wheeled wagon, carrying what one might almost call an enormous cannon with an inverted muzzle: this is a “water-tower.” Still another detachment dashes toward the box from the north. This is a big red wagon drawn by two noble animals that are covering the ground with great leaps. It is filled with men wearing white rubber coats and red fire-hats. This is a section of the fire-insurance patrol, and they come to protect property from damage by water, and to save what they can. The third engine, coming from the west, follows and pulls up at a hydrant on the corner, and “awaits orders.”

The first company to arrive have rushed into the basement with their hose. The engine is at work in an instant, and a few dashes of water extinguish the fire. The fire-insurance patrolmen



“THE ENGINE APPROACHING FROM THE EAST TURNS THE CORNER.”

go through the building, opening windows to let the smoke escape, and ascertain the amount of damage done. Members of the first truck company to arrive assist the men from the engine company in putting out any remaining traces of fire, by pulling down woodwork, plaster, etc., in the kitchen. The other companies stand ready to get to work until ordered "to quarters" by the battalion chief; and soon there is little evidence of a fire beyond a wet pavement and a badly wrecked kitchen.

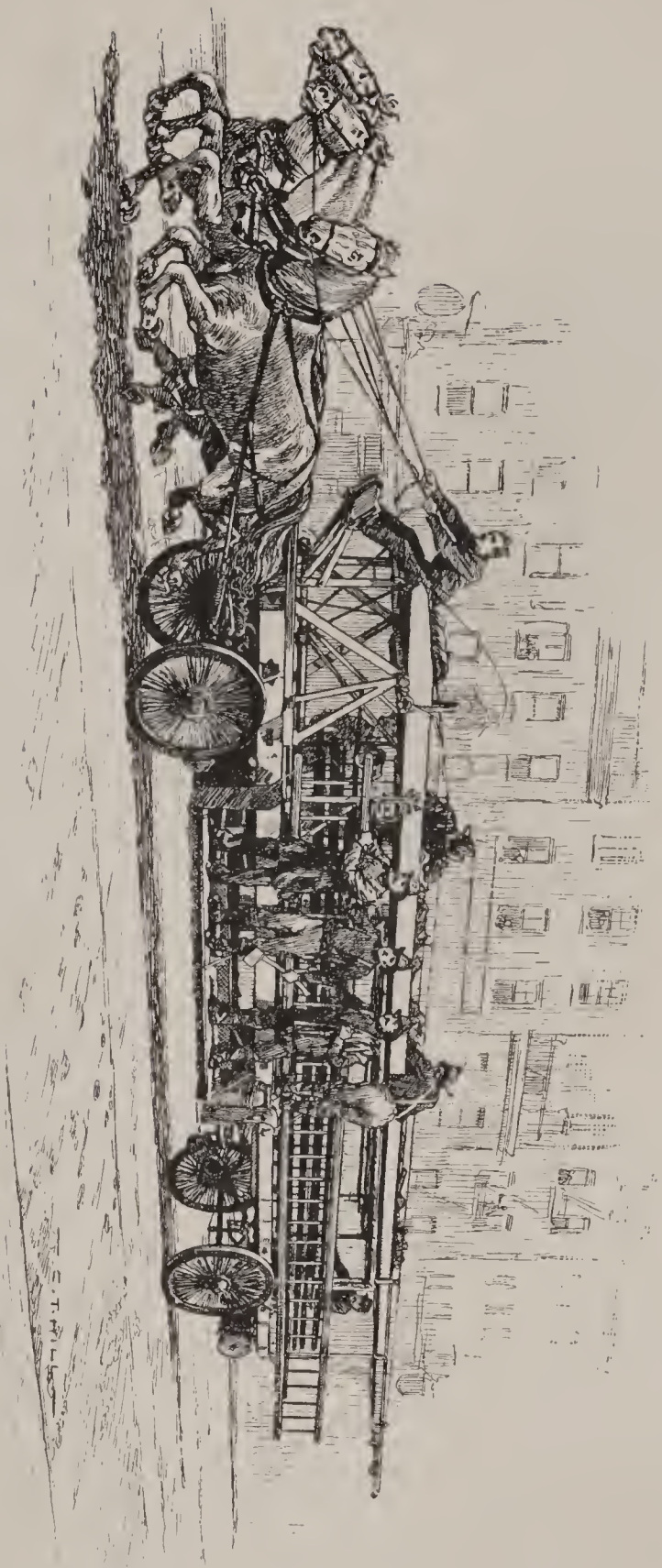
In reviewing the events that have followed the pulling of the hook in this box, we find that within three minutes from the time the alarm was sent in, an engine and a truck company were on hand. In two minutes more three other companies had arrived, and in exactly seven minutes from the instant the hook was pulled down, three engine companies, two hook-and-ladder companies, a water-tower, and a section of the fire-patrol, with two battalion chiefs, were on the spot, and ready to go to work. In all, about fifty-five men, with ten pieces of apparatus—a small fire department in itself.

This is not remarkable; for if we consider that there are, on an average, from ten to fifteen alarms

of fire a day in New York City, we can realize what an ordinary event this becomes. It is partly due to the efficiency of the fire-alarm telegraph system that this rapid concentration of fire forces is possible. Let us visit fire headquarters in East Sixty-seventh Street, and see how the alarms are received and sent out.

We find the telegraph bureau a large, well-lighted room on the sixth floor of the building. In the middle of this room is a raised platform, perhaps a foot in height; and this platform is surrounded on three sides by cabinet-work, almost like immense bookcases, and reaching nearly to the ceiling. A passageway on both sides of this cabinet-work makes the back easily accessible; and an entrance through the middle leads to the battery-room in the rear of the bureau. There is a post in the center of this passageway studded with "push-buttons," and within this three-sided inclosure are the various delicate and intricate machines for receiving and recording the alarms, most of the instruments being protected from injury or dust by cases of glass.

The face of the cabinet-work on both sides is filled with keys, sounders, switches, and all manner of electrical devices for receiving and trans-



A HOOK-AND-LADDER COMPANY.

mitting alarms of fire, and all the private telegraph signals used in the work of the fire department.

An operator comes forward, and under his guidance we will look into the methods of attending to a most important branch of the fire service—that of receiving and recording an alarm of fire from a street box, and transmitting the same to the engine companies nearest to the fire, in the shortest possible time. We are first to see the “register,” or machine that records the alarm as it comes in from the street box. This machine not only indicates the pulling of a fire-alarm box by clicking off the number of the station, but prints it upon an endless tape of paper about a foot wide.

We find a station recorded thus:

1 4 7 Station 147.

If we examine this machine closely we shall find five oblong vulcanite (or hard-rubber) cases back of that part that does the printing. Each of these little cases contains ten sounders, and each sounder represents a circuit. There are from ten to fifty boxes on each circuit, so that this machine records the alarms from over a thousand boxes!

A delicate steel rod connects each sounder with a little brass elbow-joint that does the printing, somewhat like the key of a type-writing machine. As each click or pulsation of electricity comes through a sounder, this little rod is pulled back. It depresses the elbow-joint, and this prints a dash upon the paper. There are fifty of these little elbow-joints all in a line, one for each circuit, so that boxes on different circuits print upon different parts of the paper.

We can better understand a "circuit" if we imagine a long wire reaching, say, to the Battery — five miles away — and returning to headquarters. Branch wires running from this main line connect with boxes at different places along the way. No two adjacent boxes are put on the same circuit. Thus we find a circuit connected with a box at Fifty-eighth Street and Broadway, and the next box on the same line is at Forty-sixth Street and Eighth Avenue, twelve blocks away. This is to prevent the possibility of two boxes on the same circuit, or wire, being pulled at once for the same fire.

This delicate and ingenious instrument prevents the possibility of confusion of this kind occurring, for even if two stations were to "click" off at the



A WATER-TOWER.

same time, although it might not be possible to count the clicks, the numbers of the boxes, being on different circuits, will be found printed clear and distinct on different parts of the paper. The operator, divining that both have been pulled for the same fire, sends out only one on the combination key.

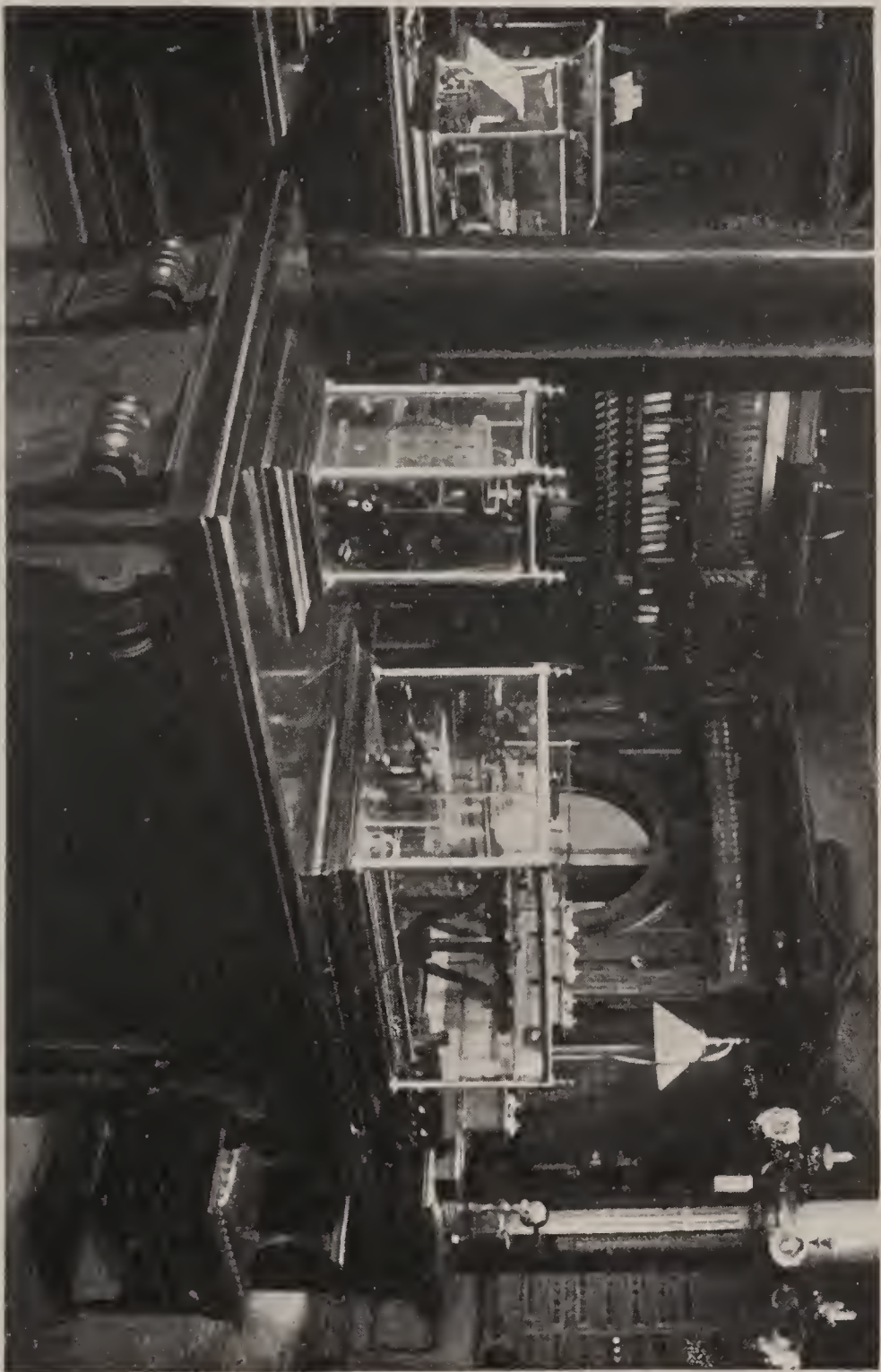
In an earlier part of the book, I have described the instruments in the engine-houses and the work that they perform, but I will repeat part of that description, that we may better understand the methods employed in sending out an alarm after it has been received on the register.

In every engine-house there is a small bell that begins to ring off the alarm as it comes in. This is called the "combination," because it not only tells the number of the box, but it allows a weight to fall that springs a "trip," or lever, which in turn releases the horses. Shortly after this begins, a very large gong rings out the station number in loud strokes. Should the firemen fail to count the strokes of the small bell, they cannot fail to count those of the big gong. In the illustration on page 5 the "combination," the "trip," and the big gong will be found assembled in their relative positions.

We will now go back to the telegraph bureau and see how these strokes are sent to the engine-houses. We will first look at another instrument or two before we imagine an alarm to come in, that we may better understand what is being done.

All along the side where the register stands are a number of telegraph keys, one for every circuit—sixty in all, there being ten extra circuits besides those connected with the register. They are similar to the keys in every telegraph office. In the corner, on the same side, there are eight extra keys. These operate the “combination circuits,” the engine-houses being on circuits just as the boxes are. With these the operator rings the combination bell that I have just described. Above each there is a large push-button not unlike a stop in an organ. A number is on the face of each, and they represent the circuits controlled by the keys. A large hand-lever also is here, which throws on an extra heavy current of electricity whenever it is necessary to use these circuits, a light current only being kept on them at all other times.

Toward the front of the platform, and near the right-hand side of the inclosure, stands another



GENERAL VIEW OF THE FIRE-ALARM TELEGRAPH HEADQUARTERS.

machine, a most important one. It stands upon a cabinet or pedestal of its own, and this machine, called "the repeater," controls the ringing of the big gongs in the engine-houses. It is carefully inclosed in a glass case on all sides except that facing the register. Here there is a small round opening near the bottom, through which projects the shaft of one of the larger wheels of the machine. A brass disk, or "button," is pushed on this shaft when an alarm is being sent out, and this button controls the number of strokes that this instrument rings upon the big gongs.

In the center of the platform, and directly at the front, stands another machine that is really a wonderful piece of mechanism—a tall, upright instrument, also inclosed in a glass case. There are four disks or circles to be seen on the front of it, three in a row and one directly in the middle, over the three. Each circle consists of four wheels, one on top of the other. These wheels are so numbered on their rims that by moving them around any combination of figures can be made. For example, by moving the first three wheels around until 2 shows on the fourth, or last; the

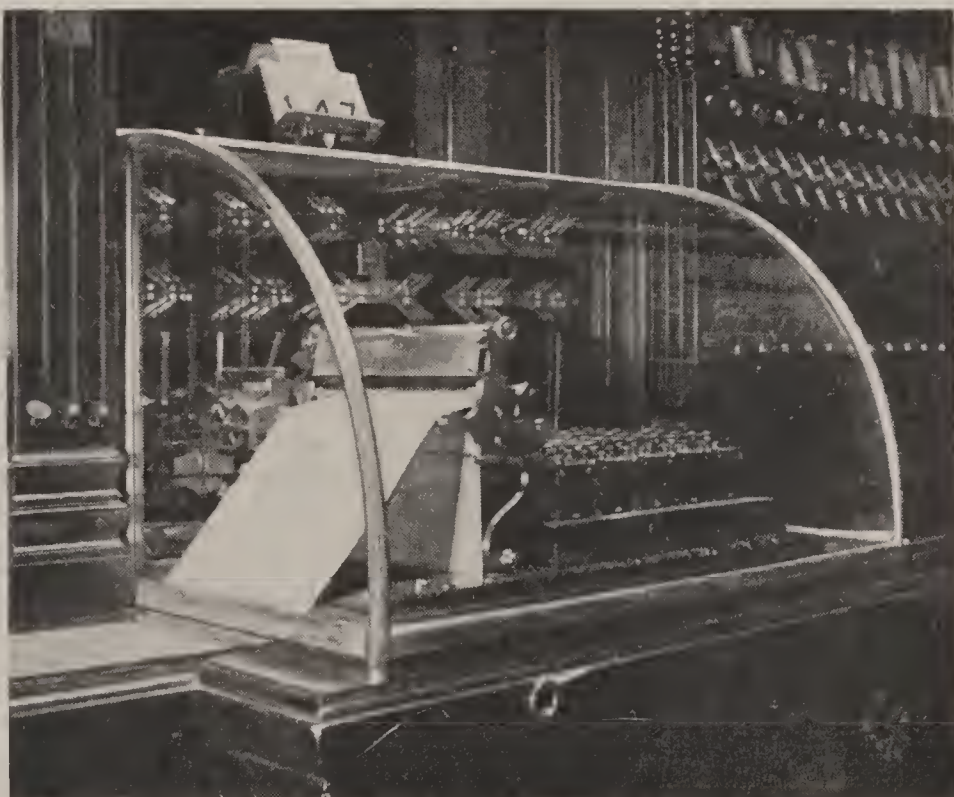


A SET OF WHEELS
FROM THE SPECIAL.

second wheel around until 3 shows on the third, and the first around until 4 shows on the second wheel, we get 234, the wheels moving from left to right, and the last, or bottom, wheel showing the first number. Beside the upper or top circle there is a pointer resting upon a dial numbered from 1 to 5. This pointer controls the number of rounds sent out by this machine. By setting it at figure 2 upon the dial, and pressing it down, after we have set the combination of numbers mentioned above, this instrument will send out two rounds of "234" to all the engine-houses.

This instrument, called the "transmitter," is used for sending out the second, third, fourth, fifth, and sixth alarms, and all the special calls used in the service, and can be used for transmitting all regular alarms in case the other instrument breaks down. It is connected by the "big-gong" circuit with all the companies in the department, and any combination of strokes on the large gongs can be rung with this instrument. It is entirely automatic, and, after the numbers are properly set on the wheels, never makes any mistakes, and is really the most important and ingenious machine in the bureau.

Having thus seen all the principal instruments,



THE REGISTER.

This marvelous instrument registers the alarms from more than 1000 boxes. The paper on which the box numbers are written is 10 inches wide and is run through the register by a system of clock-work. The "pens" that do the writing hit the paper where it passes through the instrument at the highest part, printing a long, black dash at each click of the sounder. Inside the glass case covering the register, and at the lower left-hand corner, can be seen some of the clock-work machinery that starts the paper moving when an alarm begins to come in. The bright, V-shaped metal pieces, seen at the back of the case and above the instrument, are the switches controlling the circuits connected with the register. On top of the case is a little easel holding cards bearing the number of the last alarm that has come in—in this instance from box No. 147. Another register, an exact duplicate of this one, is located in a corner of the platform near the combination keys. Should anything happen to the one described above, the wires coming from the boxes can be switched into this "reserve register" in an instant, thus insuring the bureau against failures in receiving the alarms.

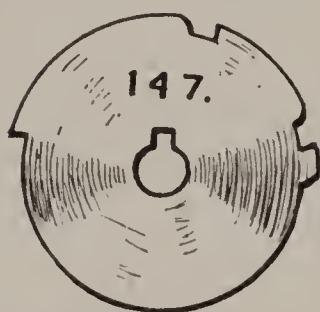
and understanding their uses, we will now see what happens when an alarm comes in.

An operator sits at a desk in the middle of the platform, answering and attending to the telephone calls coming from the different engine-houses, for this desk is the "central office" of the department. Another operator moves about in front of the "switchboard" on the other side of the platform, testing the strength of currents on the different circuits, etc. There are always two operators on duty, sometimes three, night and day. They work in shifts, or "tours," as they are called, of eight hours each, three tours making up the day.

Suddenly there comes a buzzing of machinery in the direction of the register, followed by a loud "click," a pause and four more clicks, another pause and seven more clicks,—147, the station I have already mentioned.

This is repeated five times, the number of rounds the box sends in; but before the first round has clicked off, the operator at the desk has stepped quickly to the register. He glances at the tape. He turns as quickly from this to a cabinet in the center of the platform and at the back of the telephone desk, and opens a drawer.

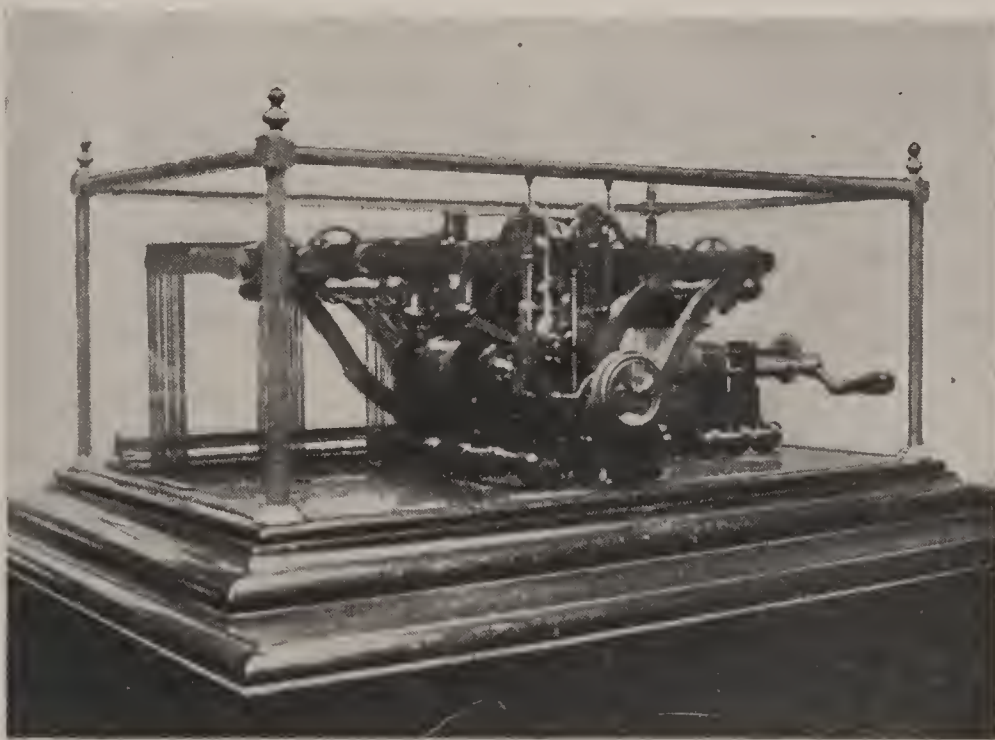
This cabinet is made up of wide, shallow drawers, and as he opens this one, we see that it is full of rows of little brass disks about two inches in diameter and a quarter of an inch thick, each



A REPEATER BUTTON.

resting over a wooden peg that is fastened to the bottom of the drawer. These are the disks, or “buttons,” that operate the repeater, or big-gong instrument. There is one for every station, or box, each one cut differently; and as there are ten or eleven hundred boxes, it can be seen how many there must be.

He takes out the one bearing the number of the station that has just come in—147—and passes it to the other operator, who by this time stands beside the repeater. With this disk there are two others, made of cardboard, also bearing the number of the station and having beneath two rows of figures. These figures are the numbers of the circuits or wires over which this alarm has *not* to be sent. He passes one to the operator beside the repeater, and, retaining the other, he steps quickly over to the “combination keys,” and pushing down the lever that throws on an extra-heavy current of electricity, with a firm, quick touch he sends in the alarm to the companies nearest the fire.



THE REPEATER.

This instrument, like the transmitter, is run by clock-work operated by a system of weights placed underneath the cabinet it stands upon. The handle to wind it up can be seen at the right-hand end of the glass case covering it. The button that sends out the required number of taps over the "big gong" circuits is pushed on a central shaft through the round openings seen in the front of the glass case. These buttons are held upon this shaft by a tweezer-like spring surrounding the same.

The wires shown in the illustration at the back of the instrument connect the cylinders that revolve when the machine is at work with the "big gong's" circuits. The telephones throughout the department also receive the alarm by means of one of these cylinders, and should you happen to be in an engine-house when this instrument is at work, and the alarm does not come in on either the "combination" or the "big gong," you will hear the tiny telephone bells strike the number of the box with the slow, measured tap of the big gong.

When he has sent in two rounds, or the number of the box twice, his fellow-operator at the repeater pushes the little brass disk that he holds in his hand on the shaft that projects through the round opening in the glass case of the latter instrument, and pressing a push-button, it begins to revolve. As we watch it revolving we see the first little projection on the rim of the disk press against a steel spring beside the shaft, long enough to let one pulsation of electricity pass through the machine. This allows some small cylinders at the top to revolve once. This means one stroke on the big gongs in the engine-houses. When the second projection reaches this spring it keeps it back long enough for four revolutions of the cylinders,—that means four strokes on the big gongs,—and the last and largest projection allows the cylinders to revolve seven times, meaning seven strokes, thus completing the number.

This button, or disk, revolves twice, sending out two rounds of the signal. In the meantime, the other operator has sent out two more rounds on the combination key, so that the firemen responding to this box receive the number of the station six different times and on two instruments, leaving little chance for mistakes.

Before the operator sends out the first stroke on the combination key, with a rapid movement he pulls out the large "stops" or push-buttons controlling the circuits over which the alarm is not to be sent. This leaves the companies on these circuits in comparative quiet, they receiving the alarm only on the telephone, of which no official notice is taken. There are some eighty-two or more engine and hook-and-ladder companies in New York city, distributed over a distance of fifteen miles, so it would be manifestly absurd to arouse them all for fires to which, perhaps, many of these companies would not be called even if they proved serious. By this system of having the engine-houses on circuits, only those in the immediate neighborhood of the fire are notified, with perhaps a few scattering companies who happen to be on the same wires.

In sending out an alarm in this manner, everything is done very quickly — more quickly than it can be described. Not a word is spoken. Conversation of any kind might cause a mistake that would result in the possible loss of many lives and valuable property. Each operator knows exactly what he has to do, and does it silently and quickly, and it is estimated, by careful timing, that an



THE "TRANSMITTER."

This might be called the most important instrument in the bureau, inasmuch as it can be depended upon to send out any and all of the alarms received at headquarters. Any combination of figures can be arranged upon these wheels, from 1 to 999. In sending out a set of signals with this instrument the wheel at the left-hand side begins to revolve first, the others following in the order of their arrangement, the wheel at the top revolving last. This instrument is also run by clock-work.

alarm can be received and sent out by this method inside of nine seconds, and this from a box having a long number, so that very little time is lost.

Even in the case of a large fire, when one alarm follows another at the most rapid rate, there is little confusion, if any at all. A visitor to the bureau would scarcely realize that an alarm had been received and sent out until it was all over, so systematically is everything done.

When the operator at the combination has finished his task, he turns to a large book beside him and ascertains the numbers of the companies who respond to that box. This book is called the "assignment book," and is issued for the benefit of the different companies of the department; for it tells the number of each box, and its location, and the companies that are "assigned" or expected to respond to that particular box, on the first, second, third, fourth, and fifth alarms; also the order in which they are supposed to arrive. Having found the numbers of the companies "due" upon this station, the operator turns to the post in the middle of the platform, and, under the row of push-buttons headed "Out," he pushes in the numbers of Engine Companies 31, 55, and 12, and Hook-and-Ladder Companies 6 and 8, and Water

Tower No. 1, thus putting them "out of service." This means that they have left their respective quarters, and cannot be depended upon to respond to any other alarms that might come in from their district. As he pushes in these buttons, little round disks bearing similar numbers drop down in an annunciator at the top of the cabinet-work over the switchboard.

By referring to this annunciator the operator can tell at any time just what companies are "out of service," and should other alarms come in from their neighborhood while they are "out of quarters," he will have other companies respond. When the companies return from a fire the Morse instruments announce their return by a series of little clicks. This is the captain or officer in charge sending in his "return taps," or "three-fours," as they are known technically, that is, 4-4-4 and the number of the company, thus informing the bureau that his company is back in quarters once more, and ready to respond to other alarms. The operator replies, "2-3," meaning "all right," on the Morse key, and then, turning to the push-button post, under the heading "In," pushes them back "in service" again. Shortly afterward the officer in charge of the fire calls the operator up



THE OPERATOR SENDING OUT AN ALARM ON THE
"COMBINATION."

on the telephone, and tells him the location of the fire and amount of damage to building and stock or furniture. This account is afterward entered in a "journal" kept in the bureau, and three copies are sent down to the commissioners' rooms, where records are kept of all fires, no matter how slight.

This finishes the routine work in this bureau of receiving and transmitting "an alarm of fire by telegraph." The operation is gone through ten or fifteen times a day—some days less, others many more. In the dead of night, in the early hours of the morning, while we are sleeping, eating, at work or at play, the operator is always here, wide awake, and ever on the alert—ready to answer the call for help that may come from the "little red box," and to send it on to those who will aid us in saving our homes from destruction and ruin.

After this, when we see a fire company responding to the call of duty, we shall better appreciate the methods that have been used to send them on their noble errand. And when we glance through the pages of a metropolitan engine company's "house-journal," we shall better understand how much meaning is hidden beneath that little phrase—"an alarm of fire by telegraph."

THE RISKS OF A FIREMAN'S LIFE.



THE risks and dangers that firemen face in the discharge of their duty are known to very few. The outside world—the public at large—hears little or nothing of them. Fires, in a large city like New York, are of such common occurrence that the newspapers rarely give them more than a paragraphic notice; and, in fact, all accounts of fires to-day are condensed so as to occupy the smallest possible space. Of course conflagrations of any magnitude receive their share of recognition in the columns of the daily papers; and the papers are never stinting in the praise they give the firemen for the brave and skilful work that they perform; but the Fire Departments throughout all our large cities are so perfectly organized to-day that the “large fire” does not often occur, and detailed accounts are therefore seldom found in the papers.

When we see a fire company dashing on its way

in answer to an alarm, we stop to admire the stirring picture that it presents. Instinctively we look in the direction in which it is proceeding for the appearance of smoke, if it be daytime, or the glare of the flames, if it be at night, to indicate the location of the fire. We perhaps see none, and pass on our way; and in the whirl of city life this incident is soon forgotten. And yet this company may return with many of its members bruised and sore, while others are perhaps conveyed to near-by hospitals, mortally wounded. It is not always the fire that makes the biggest show that is the hardest to fight. The fire that goes roaring through the roof of a building, lighting up the city for miles around, is sometimes much more easily subdued than the dull, smoky cellar or sub-cellar fire that forces the men to face the severest kind of "punishment," the effects of which are felt for weeks afterward, before it is controlled.

At a sub-cellar fire that occurred one night, a few years ago, on lower Broadway, I saw over a dozen men laid out on the sidewalk, overcome by the smoke. A gruesome sight it was, too, with the dim figures of the ambulance surgeons, lanterns in hand, working over them, and the thick smoke for a background.

These were brave fellows who had dashed in with the lines of hose, only to be dragged out afterward by their comrades, nearly suffocated by the thick, stifling smoke that poured in volumes from every opening in the basement. Over one hundred and fifty feet of "dead-lights," or grating, over the sidewalk had to be broken in that night before the cellars were relieved sufficiently of the smoke with which they were charged, to allow the men to go in and extinguish the fire. This required the combined work of the crews of five hook-and-ladder companies, who broke in the iron-work with the butt-ends of their axes — the hardest kind of work. But the newspapers the following morning gave this fire only a ten- or twelve-line notice, mentioning the location and the estimated loss, and adding that "it was a severe fire to subdue." No word of the punishment and suffering the men were forced to face before this fire was under control; no mention of the dash after dash into the cellar with the heavy line of hose, only to be driven back to the street by the smoke, or to be dragged out afterward nearly unconscious; nor of the thud after thud with the heavy axes on the thick iron grating that required twenty or thirty blows before any

ATTACKING A FIRE IN A SUB-CELLAR.



—C.T.HILL—

impression could be made on it. This was muscle-straining, lung-taxing work that the average man has to face only once in a lifetime; but the firemen in a large city have it always before them; and each tap on the telegraph may mean the signal to summon them to a task that requires the utmost strength and nerve.

While speaking of cellar fires, let me relate an incident that happened to some companies in the down-town district at a fire of this description. It occurred in Barclay street, in the sub-cellar of a crockery and glass warehouse, amid the straw used to pack the glassware. It sent forth a dense, stifling smoke, and was an ugly fire to fight. I will relate it in the rather characteristic way in which it was told me by a fireman in one of the companies that were summoned to subdue it. The story gives an idea of what the firemen in the business part of a big city may have to face at any time.

“The station came in one night at 11:30. We rolled, and found the fire in Barclay street, in a crockery warehouse — burning straw, jute, excelsior, and all that sort of stuff in the sub-cellar. Smoke? I never saw such smoke since I've been in the business. We went through the building, and found the fire had n't got above the cellar.

We tried to get the line down the cellar stairs, but it was no use. No one could live on that stairway for a minute. The chief then divided us up, sent out a second [a second alarm], and we sailed in to drown it out; 27 engine got the rear; 7 engine the stairway, to keep it from coming up; and our company, 29, got the front. We pried open the iron cellar doors on the pavement, only to find that the elevator, used to carry freight to the bottom, had been run up to the top. Here were four inches of Georgia pine to cut through! And phew! *such* work in *such* smoke! Well, we got through this, opened it up, and—out it all came! No flames, just smoke, and with force enough to suffocate a man in a second. We backed out to the gutter and got a little fresh air in our lungs, and went at it again. We brought a 35-foot ladder over from the truck and lowered it through this opening, and found we *could n't touch bottom!* A 45-foot ladder was put down, and only three rungs remained above the sidewalk; this showed that there was over forty feet of cellar and sub-cellar! And down in this place we had to go with the line. Well, the sooner we got at it the sooner it was over; so, shifting the line over the top rung of the ladder, so it would n't

get caught, down we started. It was only forty feet, but I can tell you it seemed like three hundred and forty before we got to the bottom. Of course, when we got there it was n't so bad; the smoke lifted, and gave us a corner in the cellar shaft where we could work, and we soon drove the fire away to the rear and out; but going down we got a dose of smoke we'll all remember to our last days."

The company working in the rear fared even worse than the other. They had to descend into a narrow court only four feet wide, about twenty-five feet long (the width of the building), and forty feet deep, merely a shaft to give light and air to the cellar and sub-cellar. When the company in the front got to work, they drove the fire to the rear with such violence that this company was compelled to ascend rapidly to the street floor to save their lives.

Next to a dangerous cellar fire nothing is more dreaded by the men than what is known in their own language as the "back-draft." This is a sudden veering of the flames, usually caused by the burning away of some portion of the building that gives the fire renewed draft, and changes its course completely.

The firemen arrive and find the whole second or third floor of a building in flames. Axes in hand, they smash open the doors, and with the hose dash up the stairway. This is all afire, and the flames are rolling above like a red pall. With the engine at work and good pressure on the line, the battle between the two elements, fire and water, begins. Inch by inch the men fight their way up the stairway, now to retreat as the fire gains upon them, and now to advance as it rolls away for a moment. The encouraging words of the commanding officer are heard behind them urging them on: "Now, get in, boys! That 's it — get in — get in! Make the next landing! Hit it up, boys!" and all the other words of encouragement that he usually gives.

They finally reach the landing. They are on the floor with the fire. It rolls away from them. They drive it further back. Encouraged by their seeming victory, they drag up more of the heavy hose to make a final dash at it, when suddenly something falls in at the rear of the fire and gives it renewed draft. It rolls toward them, an impenetrable wall of fire — the deadly back-draft! Their only chance of escape is to throw themselves upon their faces, in hope that it may roll



A LEAP FOR LIFE.

over them, or to hurl themselves down the stairs up which they have so gallantly fought their way. Better a broken leg or arm than death by roasting; and the water of fifty engines could never stay the progress of that awful wave of flame.

Many a brave fellow has lost his life in this manner; and very often all the members of a company return with their eyebrows, hair, and beard singed off, bearing evidence that they have been "ketched," as they express it, by a less terrible form of this deadly draft.

Another kind of back-draft that is greatly dreaded takes the form of an explosion, and is usually met with in fires in storage-houses and large warehouses that have been closed up tight for some time. A fire breaks out in such a building, and, as a rule, has been smoldering for some time before it is discovered. The firemen are summoned, and, raising a ladder, they pry open an iron shutter or break in a door to get at the fire. The combustion going on within the building has generated a gas; and the moment the air gets to this, through the breaking open of the door or window, the mixture ignites. An explosion follows, and a portion or the whole of the front of the building is destroyed. Several accidents of

this kind have occurred in New York — one in a storage-warehouse in West Thirty-ninth street a few years ago, when the whole front was blown out, hurling the firemen from the ladders, and severely injuring a large number. Another accident of the same nature occurred shortly after this, in a large wholesale flour-warehouse down-town. In this case it was supposed that particles of flour in the air inside the warehouse became ignited and exploded; but it was practically another case of the back-draft. Several firemen were maimed and injured in this case.

Now much greater caution is exercised in “opening up” buildings of this kind when a fire breaks out in them; and to-day the back-draft is of rare occurrence, though any alarm may bring the firemen face to face with it.

The falling wall is another danger with which the firemen have to contend in fighting a fire, although it can truly be said that, like the big fire, this difficulty is not often met with to-day. Modern buildings do not crumble away as some used to in the fires of ten or fifteen years ago, and the up-to-date fire-proof building may be entirely gutted inside while the walls remain intact. It may seem strange to speak of a fire-proof building

being burned out, but experience has taught the firemen not to put too much confidence in such structures, for it has been shown that many of them are really not so "fire-proof" as their builders had imagined.

There are several kinds of falling walls, and the fireman of experience knows them well, and what to expect from each. There is one kind that breaks first at the bottom and comes down almost straight, somewhat like a curtain. This makes a big noise, but is not very much to be dreaded. Then there is another that bulges or "buckles" in the middle at first, and makes a sort of curve as it descends. This is always more serious than the first, and has caused many fatalities. Then there is one that breaks at the bottom and comes straight out, reaching clear across the street, and remaining almost solid until it strikes; and, as an old-time fireman once remarked: "That 's the kind you want to dodge."

This kind of "falling wall" has caused more of the deaths in the department than any other danger the firemen have to contend with. It has killed horses as well as men, and destroyed apparatus; and it falls so rapidly, and covers so much space, that to escape it the men have to be quick indeed.

Fires in warehouses filled with drugs and paints always mean grave danger to the firemen. Fires occur in them quite frequently, usually caused by spontaneous combustion or through the vaporization of some of the many oils or chemicals stored in the buildings. They make dangerous fires to fight, the carboys of different acids being packed in salt hay or straw that makes a dense smoke ; and this smoke is sometimes charged with the fumes of some acid, the combination forming a most deadly mixture to breathe. Still, fires of this kind must be fought as bravely as fires amid less dangerous surroundings, for the very nature of the contents makes it imperative that the fire be extinguished as soon as possible ; and the greatest personal risk is sometimes taken in getting these fires under control.

The firemen often work in the cellars of these buildings surrounded on every hand by cases or barrels of oils and chemicals of the most inflammable kind, fighting the fire back, inch by inch, until it is finally conquered. Sometimes they can remain in such situations for only a few moments at a time ; and then the exhausted men retreat to the street, while a fresh squad or company take their places.

They cannot afford to give the fire a chance to



— C. T. HILL —

GOING TO A FIRE IN A BLIZZARD.

gain the slightest headway, for should it reach the dangerous material around them an explosion would follow, probably killing every one in the cellar. So it is fought stubbornly and persistently until under control; but none but men of indomitable courage will face such risks, and the heroes who engage in this perilous work receive scant recognition of their bravery. Outside of their companions little is known of their deeds of valor, and they themselves scarcely give them a second thought, for in the routine of their work risks are taken in every fire, and the fact that the risks have been greater in a fire of this kind does not impress them especially—they know they have been in a perilous position, have faced death in a terrible form, have made a good fight of it and come out victors—there it ends.

It is not alone in saving lives from fire that the firemen show of what heroic stuff they are made; in the simple discharge of their daily duty they are often forced to risk life over and over again in deeds of daring about which we hear little—deeds that are repeated at almost every serious fire to which they are called.

The advent of winter brings with it additional dangers and hardships for the firemen. Fires

are much more numerous during extremely cold weather, and fire-duty is usually very trying throughout the winter months. This excess of fires can be traced to overheated furnaces and stoves, fires being built carelessly and in places not much used, and attempts made to warm apartments that perhaps it would not be necessary to heat at any other time. The fire record during an unusually cold spell rises to from twenty-five to forty fires per day in New York city, and this keeps the firemen ever "on the jump."

All the serious fires seem to occur on bitterly cold days or nights, and the suffering of the men working at such fires is very great. To work out of doors in a freezing temperature is not very pleasant under any circumstances; but to work *in water* and *with water* while exposed to the bitter cold is more than disagreeable.

To stand upon the peak of a ladder at perhaps the third or fourth story of a building, directing the stream of water at the blazing interior, while the thermometer is at about its lowest point, is not a comfortable task. Perhaps another stream is playing over your head, and you stand in an icy spray. Icicles hang from every point of your fire-hat, while the rubber coat is frozen to your back;

and the water that is falling about you freezes as fast as it falls. Every movement upon the ladder is fraught with danger, for it is so incrusted with ice that it is almost impossible to get a solid foothold, and a misstep would hurl you to the ground, forty feet below.

Such is the experience of nearly every fireman during the winter months; and although "ladder-work" has been done away with to some extent of late years in the big cities, still the men are likely to be called upon to perform such work at almost any severe fire, should the construction of the building require it.

The firemen find it difficult to get any sort of gloves that will protect their hands in the extreme winter-weather. A woolen glove of any description is saturated with water almost immediately and freezes stiff; while one made of leather soon gets into a condition nearly as bad, and when dry becomes as hard as iron. They are, therefore, forced to handle the hose with bare hands, no matter how bitter the weather, and "picking up" or stowing the hose away in the hose-wagons after a fire is over, becomes most painful work. The different lengths of hose have to be dragged up to the wagon through an icy slush, and sometimes they freeze

perfectly stiff the instant the water is turned off at the engine. To get them stowed away in the new hose-wagons (where they are folded and laid in lengths), or wound upon the reels in the hose-carriages, exposes the men to the severest kind of punishment. Their hands become completely numb and helpless from handling the ice-clad pipe; and the metal connections, cold to many degrees below freezing, almost sear their fingers in "breaking" or disconnecting the different lengths. The least severe part of fighting a winter fire may be said to be the fire itself, for the aftermath — collecting the hose, packing it upon the wagon in ship-shape order, and the long ride home in an icy breeze and in water-soaked clothing — is an experience that few would care to encounter; yet it is the usual sequel to every winter fire.

Broken glass and melted lead are among the other dangers that firemen are compelled to face at bad fires. The former occurs at almost every fire, and is caused by the flames bursting through the windows, or by the efforts of the men to make an opening in the building. The latter is caused by the burning away of metal cornices and ornamental iron-work at the top of buildings, in which an immense amount of solder is used to hold parts



LADDER-WORK IN ZERO WEATHER.

together. When the roaring flames pour out of the top-story windows of a building and curl up against this metal-work with the force of a blast-furnace, a perfect rain of molten metal pours down, with an occasional piece of red-hot tin or zinc, for variety. Men working upon ladders or on fire-escapes underneath have to stand this red-hot shower while it burns great holes in their rubber coats, or protect themselves as best they can by crouching inside the window-frames. "Top-story fires" may not have the disadvantages and discomforts that result from the smoke of a cellar fire, but they make up for it by the numerous petty dangers of other kinds.

There is scarcely a fire at which some one is not injured by the broken glass, sometimes seriously. There are scores of men in the New York department to-day bearing the marks of cuts by glass; and many have been maimed in this manner. They usually receive their injuries while standing on or going up the ladders. A window bursts open, or some one will break it open with an ax or with a hook, and large pieces of glass come sliding down the ladder, and, if the men are not quick, will cut them across the back of the hand. Many have been severely injured in this manner,

the muscles that control the fingers being severed, virtually maiming them for life.

There is something weird and at the same time exciting in watching the men make a night attack upon a smoky fire. The hoarse shouts and commands of the officers are heard; while the dim figures of the men, some carrying lanterns, others dragging the lines of hose into position, dash in and out. Within can be heard the dull chung, chung of the heavy ax making an opening through some door or partition that keeps the men from the seat of the fire. The thick smoke rolls down at times and shuts everything from view, only to lift the next moment and clear away as if the fire had suddenly stopped. The next instant it settles down again, forming an inky pall through which it is impossible to see clearly for more than a foot away. In the midst of this there comes a crash from above, and a perfect avalanche of glass descends: a window has been broken by the heat, or by men within to give themselves air. Those working beneath who are unable to escape this shower, stand perfectly still with their hands drawn closely to their sides, while the pieces rattle around them. The thick leather fire-hat, with its broad, protecting leaf at the back, saves them from injury. This

is a characteristic position that the men take when in the midst of falling debris; and the leather hat, with its stout ridges or "spines" on the top, protects their heads from many a serious cut or bruise.

When entering a strange building filled with smoke, the officers' first thought (and the men's as well) is how to escape should anything happen while they are working within. More correctly speaking, this is a supposed rule, not written down, that is observed by the men for their own protection. But in the excitement and hurry of making an attack upon a fire it is seldom regarded, and men often find themselves lost in a building, groping about, searching for some way of escape, while the smoke gets so thick that their lanterns are extinguished. Their only hope in this case is to find the line of hose that has been brought in, and, on finding it, to follow it along to the street. By keeping their faces low down, close to the hose, they will usually find a current of fresh air, especially if the line is charged with water, and this will perhaps save them from suffocation.

At the school of instruction the firemen are taught, before they enter the service, how to use their hooks as a means of self-protection when in smoky fires. The instructor tells them that by

pushing the hook ahead of them as they are advancing in a strange building, it will give warning of their approach to open hatchways, partitions, etc. Falls through open bulkheads and open hatchways when working in thick, heavy smoke are quite frequent, and form another of the many dangers the firemen have to encounter.

To move about quickly and with safety in the dark through a building that one is thoroughly acquainted with is difficult enough; but when we combine a heavy smoke with the darkness, and imagine a fireman to be in a building that he knows nothing about, it can be seen that the task of the exploring fireman is anything but an easy one.

Falls from roofs and extensions of buildings occur frequently, and form another menace of the calling. When walking on slippery roofs, sometimes covered with ice and snow, getting the lines of hose into position, or raising ladders to get at taller buildings, the firemen work under great difficulties; and it is remarkable that there are not more accidents than do occur. The water that they are using only adds to the dangerous condition of the roofs, sometimes forming a sheet of ice in cold weather; and as everything is done in a hurry,



"TAKING" A SHOWER OF FALLING GLASS.

the escapes that they sometimes have are little short of miraculous.

Though their life is full of uncertainties and risks, the firemen find their own amusement and pleasure in the very dangers that they have to face. There is scarcely a serious fire that does not have a humorous side to it; and they often laugh and joke afterward at the discomforts and trials that they have just gone through; or if not at their own, then at those of some fellow-member who has been in a particularly disagreeable position.

An incident that happened at a large cotton-fire in the lower part of New York, some years ago, had its comic side, and was the means of the firemen discovering the main body of the fire, which for some time they had been endeavoring in vain to locate.

The smoke was pouring out of nearly every part of the building, and although several entrances had been made, it had been impossible to find the seat of the fire. The chief in charge ordered some windows on the third floor to be "opened up," and a ladder was accordingly raised, and a fireman ascended. With the aid of a hook he pried open the iron shutters, and, lamp in hand,

stepped in and — disappeared! His companion upon the ladder, wondering why he had so suddenly vanished from sight, peered in, and found that he had stepped into the elevator-shaft, which was directly under this window, and had fallen through to the basement. Hastily descending, he alarmed the others, and forcing an entrance, they made their way to the cellar. Here they found their comrade in a sitting position upon a bale of cotton, partly stunned and dazed from the shock of the fall, but otherwise uninjured. In his hand he still held the wire handle of his lamp,—all that remained of it,—while in front of him, further in the basement, blazing merrily, was the fire they had been endeavoring to find. His fall had led him directly to it. On afterward examining the hatchway, or shaft, through which he had fallen, they found that it had bars running diagonally across at each floor, and in some marvelous way he had escaped each one on his downward flight.

In relating his experience afterward, he seemed to think his fall an especially good joke, and that it was particularly funny his not getting a “bump” from the cross-bars on his way down; though I must confess I could not see anything so very amusing in falling four floors through a burning



A HOT PLACE.

building, and bringing up right in the heart of a fire.

Considering the exposure that men in this business have to endure: jumping out of a warm bed on a bitter cold night to answer an alarm; tearing through the streets, in the face of a biting wind, bareheaded and coatless, finishing their dressing as they dash along; working in water-soaked clothing in a freezing temperature; and having many hours of exhausting work at a time—considering all these, the mortality among the firemen is very light. They are usually of strong build physically, and able to stand exposures that would kill the ordinary man in private life two or three times over, if such a thing were possible. As a rule, they are fond of their calling; and the true fireman is as enthusiastic about his work, and as full of spirit in executing it, as the soldier or sailor. The very dangers and uncertainties of which his life is so full add a kind of fascinating interest to it, and he is always ready for the unexpected—which usually happens.

I saw an exciting incident at the burning of the big American Exchange Stable in New York, last summer, that was a striking illustration of the pluck of our firemen at a critical moment, and

their reluctance to desert "the line" even when great danger threatens them.

The building was located on Broadway, and extended eastward, along Fiftieth Street, to Seventh Avenue. The fire was a big one, and as at one time it seemed that the flames might extend to other buildings, five alarms were sent out. Twenty or thirty minutes after the outbreak, the Fifty-first Street side was nearly all burned away, and the walls on that side had fallen, leaving great gaps through which streams of water were being poured on the blazing interior. Near the corner of Broadway and Fifty-first Street there was a tall piece of the wall still standing, about two stories high, and surmounted by an ornamental piece of stonework. This bit of ruined wall swayed to and fro as the timbers and beams burned away and fell with great crashes within.

Almost directly in front of this remaining tower of wall, among the steaming bricks and smoldering woodwork, were crouched a little group of firemen, directing a heavy stream of water into the roaring furnace facing them. Their engine was working at full pressure, and the line was a hard one to control. Here it may be explained that when these big fire-engines are working at full

speed and forcing from 500 to 800 gallons of water per minute through the hose, the pressure of the nozzle is all upward and backward. In order to control and direct the stream, the firemen throw their full weight upon the line and nozzle, and it usually takes from four to six men to manage such a stream.

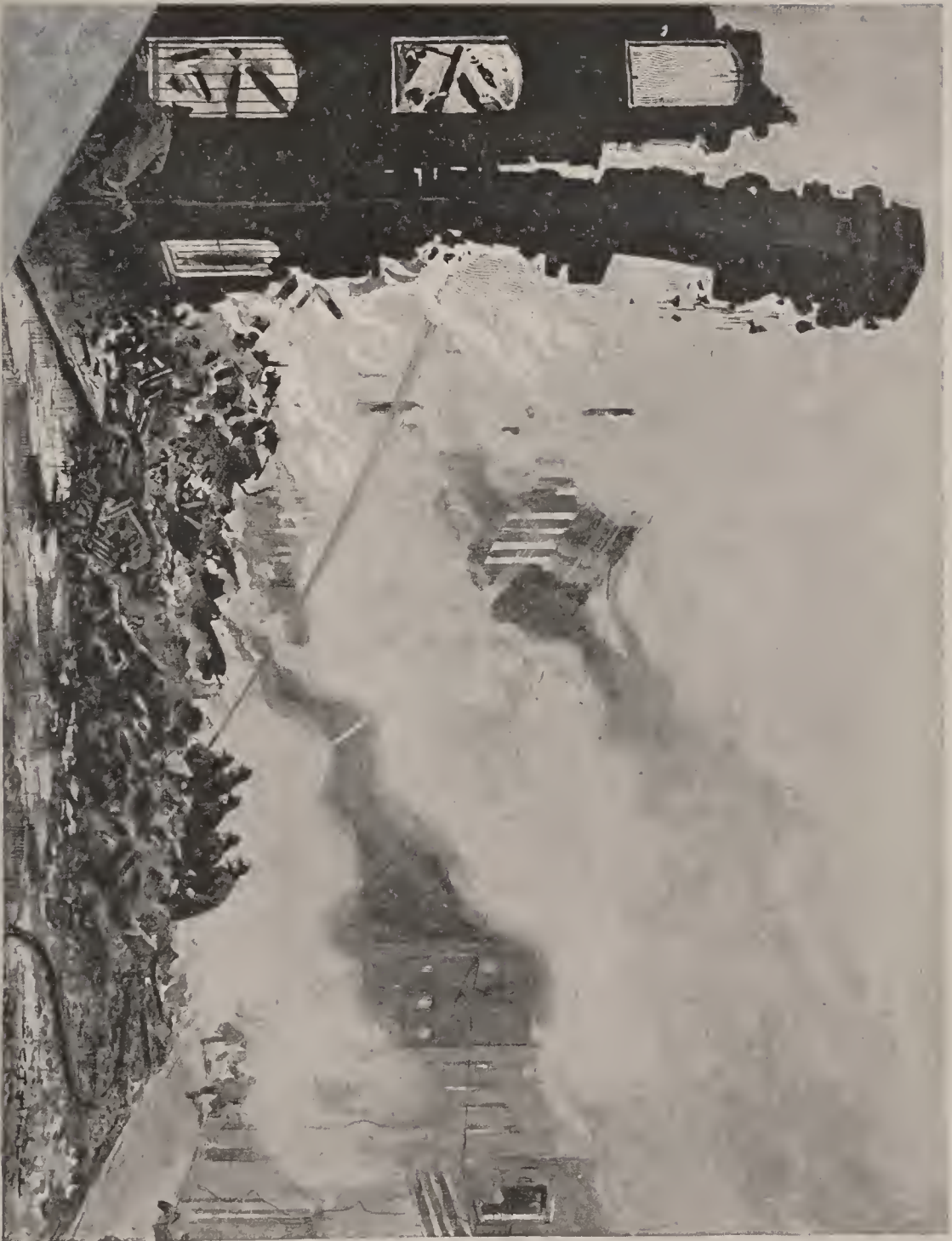
Such was the little group that I describe. Behind crouched their captain, directing and encouraging them, just as an officer upon the battle-field stands behind his men, directing their deadly fire into the enemy's ranks.

Suddenly a heavier crash than usual came from behind this tall chimney-like piece of wall. It quivered for a moment, and then began to fall straight outward, and, it seemed, directly over the little group in the street. As it began to totter, the few privileged spectators standing on the opposite side of the street ran in dismay in every direction; for they feared that it would reach clear across and crash into the houses opposite. Glancing back as they ran, they were horror-stricken to see that the little group of firemen had made no effort to escape, but were still kneeling in the same position, as if awaiting their fate. The crash came. The street fairly shook, and volumes of red dust

filled the air and obscured the view, while the flames for a moment leaped higher and higher, as if glorying in their victory over the few brave fellows who had been battling against them.

The crowd returned, sickened with the expectation of finding the little company of fire-fighters buried beneath the smoking debris; but when the smoke and dust cleared away, there was the little band crouching over the hose as before, and facing the fire as if nothing at all had happened. Their captain bent over them in the same position, uttering a word of encouragement now and then, while the powerful stream was directed at some more effective point exposed by the falling of the wall.

They had watched it as it fell, and had gaged its distance. By a quick movement all at once they had shifted the hose far enough to one side to dodge the wall as it came down, and had taken their chances of getting hit by a stray brick or two rather than desert the line at this critical moment. To have left it would have meant almost certain death to one or more of their number, for a heavily charged line of hose, when beyond control, twists about in a serpent-like manner with frightful force, and a blow from it is sufficient to kill a man.



A FALLING WALL.

They had hung together and faced the danger as one man, and it was a glorious exhibition of perfect discipline and indomitable pluck. The crowd, realizing the nerve that it required to stay in such a perilous place, gave vent to a confused murmur of approval. If the firemen heard it, they never gave any sign that they did, but went calmly on with their work. Turning their heads neither to the one side nor to the other but looking grimly ahead, they slashed the water here and there in the blazing structure that was slowly turning to a blackened, smoking mass of ruins.

When two or three companies are making an attack upon a fire and getting their lines of hose into position, mingled with the hoarse shouts and orders of the officers will come the familiar cry of "Start your water!" followed by the number of the company to which the order is passed. This might almost be called the battle-cry of the men, for it signals the opening of the attack upon the fire, and is a demand for their only protection and ammunition — water.

With a "good charged pipe," as they call it, the firemen will venture anywhere, and attack any mass of fire, no matter how formidable it may seem; but without the aid of this essential element they are

utterly helpless, and many a company has been forced to desert the hose and flee for their lives because of a bursted length in the line or the sudden stoppage of the supply from some unknown cause.

In order to facilitate the placing of lines of hose in position, the water is very often not started until they have reached the seat of the fire, especially if it is a hard one to locate. The hose itself is heavy enough to drag to the required position, without the added weight of water; and if it has to be taken up three or four flights of stairs, or up a fire-escape or ladder, it is the hardest kind of labor, and tugging at a heavy and unwieldy 2½-inch hose in a smoky atmosphere, and in the excitement and hurry of getting to work, is not the most agreeable of work.

But when the line is in position and the blaze is at last reached, the order "Start your water!" is quickly passed. This order is passed along the line, sometimes shouted from a window and taken up in the street and shouted from one to another until it reaches the engineer, who, opening a "gate" or valve on the engine, transforms the flat, flabby mass of hose into a quivering thing of life, pulsating with every throb of the engine and hurl-



“START YOUR WATER.”

ing at the heart of the fire its welcome ton or more of water every minute.

Accustomed as the firemen are to fight fire in all its different forms, they become inured to its dangers, and will dash into the most perilous position, taking the greatest personal risk, without giving it a second thought. Perhaps if they stopped to think they would not be good firemen.

One of the rules of the New York Fire Department cautions the officers not to expose their men to unnecessary dangers or to jeopardize their lives in any way in extinguishing fires; and they are not supposed to order the men into any position where they—the officers—cannot go themselves. Although the rule is generally observed, still, in the excitement of making an attack upon a fire, especially if it is gaining headway, all such rules are forgotten, and almost any risk or chance is taken to reach a good position and get the water applied effectively. Very often the men themselves, in their eagerness to attack their natural enemy and “get a belt at it with the pipe,” as they say in their own parlance, or to beat some other company into position and win “first water,” will expose themselves to great danger; and before they actually realize it they are surrounded on all sides by

flames, with all escape seemingly cut off. When caught in a "box" like this, I have heard them remark afterward that they would mentally vow that if they escaped alive they would "resign from the business" the next day; but when all danger was passed the vow was forgotten, and they laughed at their own fears, and were ready to jump into places equally hazardous.

Sometimes they are ordered to the roof of a building on fire "to ventilate," as they call it,—to break sky-lights and bulkheads to relieve the smoke inside,—perhaps to drag into position lines of hose that have been brought up from adjoining roofs. The fire may have been burning in the building longer than the officer in command knows. This has weakened the supports of the roof, and it needs only the added weight of the men to cause it to collapse, forcing them to jump to adjoining roofs, to slide down the hose or ladders, or make their escape in any possible way.

I once saw a very exciting incident of this kind at an East Side factory fire, some years ago, when a company of men with a line of hose had scarcely reached the roof when nearly all the roof and part of the rear side wall collapsed, leaving them hanging or clinging to the

coping and the part of the roof still remaining. They were forced to jump to the roof of a side building some twenty feet below; and but for the heroic work of some of their comrades, who climbed up and rescued those clinging to the shaky piece of roof that remained, they would soon have fallen directly into the main body of the fire.

At the big Bleecker Street fire, some two years ago, the firemen had an experience they will never forget. Six companies were working in the big Manhattan Bank building on the corner opposite the fire, trying to prevent the flames from getting a foothold there. The intense heat generated by the fire opposite caused the iron piers or beams on the side to twist and warp, and they gave way, carrying down two floors. The firemen inside, panic-stricken, not knowing what moment the whole structure would collapse, had to make their escape as best they could, jumping across the gap where the stairs had been (the steps were carried away by the falling of the floors), or sliding down the hose on the outside of the building from the fifth and sixth floors!

Many men were injured in escaping in this manner; and the only wonder was that a number

were not killed. The experience the men had at this fire will last them a lifetime; but it is only another example of the risks and dangers that make up the fireman's life.

PETER SPOTS—FIREMAN.



THIS is how Joe, the driver of the engine, told me the story of Peter Spots:

“How did we get him?—well, I don’t remember exactly. Let me see. It was about three years ago or more—maybe more—and—oh, yes, Billy has it right. He was chased in there one night by a lot of boys. Now I *do* remember, and mighty well too. Bob was on watch that night. You see Bob’s my partner, or ‘relief,’ as we call it. He drives the engine when I am on my ‘day off’ or out to my meals. We always have at least two drivers, sometimes more, both for the engine and tender, in case one is ‘off,’ or out of the house, when we get a ‘run,’ as we call an alarm of fire.

“Yes, Bob was on watch, and he and I and Billy were standing over there beside the ‘trip’ talking. Billy was telling us one of his yarns. He’s the oracle of the company, and an old-timer from the

days of the old Volunteers. Born and raised up the State somewhere, he belonged to the fire brigade in his native town before he came to New York. In those days all the apparatus they had to fight a fire with was a few buckets and a sponge. The sponge was used to cool the boys off when they got too excited, having arguments as to who was to put out the fire — at least that's what Billy says. Then Billy came to the city and joined the old Volunteers; and when this department was organized in 1864, he drifted in with the rest of the old-timers, and has been a fixture ever since. But he is pretty well worn out now, been overcome with smoke so many times, had his arms and legs broken in several places, falling down hatchways and off ladders, and such like; and he's gotten the 'dose' so much he is full of rheumatism.

"The 'dose' is what we call getting chuck full of smoke in a cellar-fire, or getting soaked with water while doing ladder-work in the winter time. Standing at the peak of a ladder and a heavy stream working over your head, you get the drippings of that stream for two or three hours, and maybe the full force of it, once in a while, and you won't have a dry stitch on you; and if the thermometer is down about zero, it'll be apt to

PETER SPOTS.



leave you with a touch of rheumatism. That 's the way Billy got his. But I am getting away from my story about Peter. Yes, Billy was telling one of his old yarns, something about his company, the Pioneer Hose, 'washing' Big Six in the days of the old department.

"Big Six was one of the crack companies at the time; and 'washing' consisted of pumping more water into a rival company's engine than they could pump out,¹ and the boys were as proud of having 'washed' a rival's engine in those days as we are to-day of beating another company in their own territory and getting 'first water' over them, which we take great pride in doing.

"Well, Billy was telling us this yarn—we 'd only heard it about forty or fifty times before; but we did n't say nothing, only made believe it was all new to us; for it did n't do *us* no harm to listen to it, and it gave *him* a great deal of pleasure to

¹ "Washing" a rival company occurred in the days of the Volunteer Fire Department, when the companies were obliged to get water from a distance to extinguish a fire. They would sling out in a line toward the scene of action, and pump from one engine to another until they reached the fire; and if one of the companies nearest the source of the water, usually a cistern, or perhaps the river, pumped harder than the next one, they would force more water into their rival's reservoir than the latter could pump out; consequently it would overflow, and that was what they called "washing" another company.

tell it, and he had told it so many times I guess he half began to think it really happened; but I did not take much stock in it myself. All of a sudden there came a ki-yi-ing of a dog out in the street, and a hollering of a lot of boys, and something came flying in through the open doors and took refuge over there, in a corner of the 'hose-tower.' 'A mad dog!' says Billy; and with that a crowd of boys ran up to the doorway and began waving sticks and a-shouting and hollering like mad; and I really think if we had n't been there they would have marched right in and yanked the poor fellow out. As it was, one leaned over the chain and shied a stone at the corner where he was hiding, and I shouted, 'Clear out o' here, you rapscale-lions!' But bless you, sir, *they* did n't mind that—not much. They were a hard lot from down the avenue a bit; and we have a good deal of trouble with them. It is only luck that we have not run over half a dozen or more of them when we are turning out. Seeing that did n't have no effect on them, I reached for my whip on the engine, and started for the crowd; and you ought to have seen them 'dust.' Why, when I got to the pavement there was n't a sign of them anywhere. They disappeared like the wind. I then came

back, and putting the whip up in place again, I went over to see what kind of a dog it was. Billy calls out: 'Look out, Joe! Maybe he 's mad!' But I says: 'Not much; only frightened a bit.' And I knelt down beside him.

"He was crouching in the corner licking a place on his hind leg where one of the villains had hit him with a stone. At first he growled a little; but I spoke kindly to him, and seeing he was n't going to get hurt, he began wagging his tail in a friendly sort of way and shaking his head back and forth as if he knew me.

"Billy came over, and looking at him says: 'Why, he 's a coach dog, and not a bad-looking fellow either, only he has n't seen a square meal for some time. I 'll bet those varmints of boys have half scared the life out o' him. Say, Joe, he would be a good dog for the house. Why, I remember when I was down in 17 Engine—' but at this moment the Captain came in and I was spared another one of Billy's yarns.

"'Captain,' says I, 'would you like a dog?'

"'No, I guess not,' says he, slowly; 'we have killed all the dogs we ever had—run over them, and then, he would be getting in the way of the horses when we 're turning out, and—'

“‘No,’ chimes in Billy. ‘He ’s a coach-dog and used to horses; he would n’t be in the way.’

“‘Where did you get him?’ says the Captain.

“‘He run in here a few moments ago. Some boys chased him in,’ says I.

“‘Well, he ’ll run out again, the first chance he gets,’ replied the Captain.

“‘I don’t think so,’ says I. ‘He ’s been badly treated, and if we give him something to eat and treat him right he will stay with us, I think, and if any one wants to come and claim him, and can prove that he is theirs, they can have him.’

“By this time the Captain was interested, and he ’s as good-hearted a man as ever wore a leather hat, and fond of horses and dogs and all kinds of animals, so he leans over and says to Peter, who was sitting there looking so solemn: ‘Would you like to be a fireman’s dog?’

“I ’ll eat my hat if I don’t think he knew what the Captain said; for he put his two front paws forward and rubbed his nose up and down between them, as much as to say: ‘Yes.’

“‘What ’s his name?’ says the Captain.

“Billy and I shook our heads, and I says, ‘We don’t know.’

“‘What ’s your name?’ says the Captain, looking right at him.



“‘WOULD YOU LIKE TO BE A FIREMAN’S DOG?’”

“He looked back as if he wanted to speak, and opened his mouth and moved his tongue from one side to another as if trying to say something.

“‘That ain’t loud enough,’ hollers the Captain, laughing. ‘What ’s your name?’

“This time the dog gave one short bark.

“‘That sounds like Pete,’ said Billy; ‘there ’s only one syllable in it!’—Billy ’s a smart one even if he is an old-timer.

“‘Well, Pete it is,’ says the Captain. ‘All right, boys, take care of him—and Joe, see that you don’t run over him. And Bob,’—giving a wink to me (Bob was sitting at the desk),—‘put him down in the house-journal as a new member, and see that he responds on the floor at roll-call in the morning,—and Billy, here,’—he put his hand in his pocket and pulled out a quarter, and tossed it to him,—‘go round to McNally’s restaurant and get him something to eat—we can’t let a new member go hungry, can we, boys?’”

“That was just like the Captain; he would n’t let any one go hungry—let alone a poor dumb animal.

“Bob had opened the book and was putting him down in the ‘journal,’ as serious as a judge.

“‘Fireman of the third grade, Captain?’ he sung out.

“‘Yes,’ says the Captain, ‘fireman of the third grade.’

“‘Peter —’ and then Bob stopped. ‘Peter what?’ says he.

“‘I don’t know,’ says the Captain, and he looked at me.

“‘Well,’ chimes in Billy, ‘he ’s all over black spots. *I’d* call him Peter Spots!’

“‘That ’s right,’ says the Captain; ‘Billy, you ’re a jewel; Peter Spots it is. And now, go and get him something to eat, or he ’ll starve to death before we get him down in the journal.’

“And down he went in the books as ‘Peter Spots, new member,’ and that ’s how he came to join our company.

“The first night he was with us we did n’t have any ‘calls,’ and after getting a good meal from what Billy brought back he crawled over there, behind one of the stalls, and went to sleep — the first good night’s sleep, I guess, he ’d had for a long while. The next morning he was up early, as frisky as could be, playing with the man on watch and a-cutting up high jinks around here, for you see he was a young dog and playful-like. Just then a station came in — the gong began to hit — and we came piling down from above. The horses

rushed out, and the racket kind o' scared him, — it came so sudden,—and he went sneaking off to the back of the house, with his tail hanging down as if he was afraid he 'd knocked something over and caused all the hubbub.

“The station did n't touch us, though, and we did n't go — that is, not on the first alarm, but it was one of our second-alarm stations, and while we were waiting, for we always keep the horses hitched up and wait on the floor for ten minutes on all stations that we are 'due on' on the second alarm, the Captain says: 'Where 's the new member?' but nobody knew, so we all shook our heads.

“The house-watchman said the last he saw of him he was skipping off toward the back of the floor when the 'joker' began to ring, and we looked all over, but could n't find him anywhere, and the Captain declared he 'd run away, just as he said he would. But finally, about twenty minutes after, when we got the 'test call,' which is eleven taps that we get every morning at 8 o'clock, from headquarters, to see that the wires are all in working order, and which also serves as the 'roll call' of the company, and is the beginning of another day's 'watches,' he came crawling out of the furnace of that spare engine, that we keep over

there in the corner, where he had hid himself, and sneaking along the stalls he came over to us, looking very sheepish and ashamed. The Captain, winking at me, hollered at him: 'You 're a nice fireman, you are. If you don't respond in better order at roll-call in the morning after this, we 'll have you up before the Commissioners, and have you fined five days' pay!'

"But Billy spoke up and took his part, and said:

"Don't be hard on him, Captain. He 's a new member, and new members are always nervous. Why, that gong would give most any one the heart-disease, hearing it the first time, it comes so suddint! Why, I remember when I was down in 5 Truck, we had a new member on, an' the first time he —' but the Captain cut him short, saying, 'You 'd better go to breakfast, Billy; you 're the first one off this morning'; and so another one of Billy's stories was spoiled.

"The first run we made after getting him, he did n't go with us, and we were wondering when we were rolling home whether we would find him in the engine-house on our return, or whether he *had* turned out with us and we had lost him on the way to the fire; for we ain't over particular in



PETER ON DUTY.

taking notice of things around us when we are getting out when an alarm of fire comes in. The first idea is to get out, and that as quickly as possible; and as we had all got interested in Peter, we were anxious to see whether he had deserted us or not; but when we opened the door of the house, out he came bounding, jumping up at all of us, and barking away, as much as to say: 'Well, did you put out the fire? Sorry I was n't with you,' or something like that; for to me he is so smart that I think he is trying to talk all the time, in his own way. And now — well, bless you, sir, he 's the first one out of the house. The instant the gong begins to ring, he takes his position right there, under the front truck of the engine, and there he stands — with eyes wide open, ears up, and tail sticking right straight out, he watches *me*. The moment *I* start for the seat, *he* 's off like a shot for the end of the pole between the horses, barking like mad; for he knows we are going out or I would n't jump for the seat. When the doors open, out he goes like a bullet from a gun; and if there is any one passing or standing outside, he clears them away in short order; and there 's very little danger of running over any one so long as we have him ahead of us, for he clears the way better

than two or three men could. All the way to the fire he keeps half a block or more ahead.

“And now let me tell you how smart he is; for no matter how rough the street may be, no matter how dirty, muddy, or slushy it is, nor how the stones may hurt his feet, on he goes, and never leaves it; but when we are coming home, bless your life! the street is n’t good enough for him, and you can’t get him into it, no matter how you may coax. No, sir; he takes the sidewalk back, and walks along as quiet and dignified as can be, scarcely ever noticing any other dog on his way; for I think he feels he is much more important than they are, and that they are not in his class at all. Nor does he stop when we get to the fire; but he follows us right up in the building, down a basement, or up a ladder—ah, now I see you are laughing, and don’t believe what I am telling you, but it is a fact. He can climb a ladder with the best of us, providing it ain’t too high a one, and follows us right in with the ‘line’; but he can’t come *down* a ladder; he has n’t the knack of that yet, and that ’s where the trouble comes in. Many ’s the time we ’ve gone up and brought him out, overcome with smoke, and, carrying him down, laid him in the wagon to get over it.

“And many ’s the time the Chief has said to us: ‘Some of you fellows will be losing your lives yet, with that dog!’ But, pshaw! sir, we would as soon think of leaving one of the company behind as leave Peter; for he is one of the company, although he ’s only a dog.

“And he ’s taken his dose with the best of us. Got full of smoke lots of times, and soaked with water over and over again. Came home one night with his tail frozen stiff. Got drenched at a cellar-fire, and as it was a bitter cold night it froze on him on his way back. He was on the sick-list for a long while after that, and we had him tied up in the cellar near the furnace, thawing out, and all done up in bandages; but he came out all right. Then we knocked him out of a window, one night, with a line. He was standing on the sill, and we were making a quick movement to get from one room to another. There was good pressure on, and we had a heavy stream to handle; and just as we made a quick turn to get a ‘belt’ at another room that was blazing up lively, we hit Peter, standing on the window-sill, square with the stream. Out he went sailing clear into the middle of the street, like as if he ’d been shot from a cannon. We thought he was done for that time, sure;

but when we 'backed out,' about twenty minutes after, there he was, a little lame, but nearly as lively as ever. There was considerable snow in the street, and that saved him.

"And burns? Well, say, his back is all tattooed from the burns he 's caught. What with falling plaster and bits of burning wood, he is all covered with bare places where the hair will never grow again; but those are service-marks, and I tell you he 's a veteran and proud of them.

"But poor Peter got into disrepute one time and was 'suspended from active duty'; and I must tell you about it, for it is one of the events of his life, and shows that a dog never forgets.

"It came about this way: we always had a reputation for being a lively company — of turning out in good order and quickly, of keeping all stations that we were due on first, and not losing any of them to the other companies above and below us through slowness, and of always being found in a 'good position' by the Chief when he arrived at the fire — something our Captain has taken a great deal of pride in; but there came a time when everything went wrong with us, and Peter, without meaning any harm, helped it along. We got a new team of horses for the engine, and were breaking



PETER ON "HOUSE-WATCH."

them in; they were pretty slow at first, and it was quite a job, and it was as much as I could do to get a 'run' out of them, and Peter got in a bad habit of jumping up at them and biting at their chests when we were on our way to a fire. I suppose he thought he would make them go faster by doing this; but this only made matters worse, and instead of increasing their speed they would balk and stop altogether.

"I tried to break him of it, but—no use. I fixed a long lash to my whip and would touch him with it, but it did n't make any difference; and I knew there would be trouble if he did n't stop, for we kept losing fires that were easily ours, and to save Peter I kept blaming it on the horses, and told the Captain it would be all right when we got the team broken in. Finally there came a day when everything went against us.

"We received an alarm of fire from a station above here that should have been ours without any trouble. You see, sir, there is a great deal of rivalry among the companies about getting to a fire when an alarm comes in. The next company above here lays about fifteen blocks away; the next one below, about eighteen blocks. We claim everything half the distance either way. If we

can hitch up a little quicker than they can, and make better time, we can get fires away from either of the other companies; for the first company to arrive 'gets the fire,'—that is, gets 'first water,' as we call it,—and there is a great deal of 'crowing' done when we beat another company in their own territory, and we feel very cheap when we get beaten ourselves.

"Well, that 's the way it was on the day that Peter got suspended. The alarm came in from a station that was in our half of the territory,—a fire that ought to have been ours easily, but the harness got jammed—would not come down on the horses; then when we started, the horses shied, and we came near killing our lieutenant, who was opening the doors. This got the engine crooked, so that we could not get through the doorway, and we had to back her before we could get out, and I tell you everything went wrong. We only lost a few seconds by these mishaps, but it was enough to lose us the station.

"When we finally got out and got going up the avenue, I tried to make up for lost time by giving the horses all the rein I could, and giving them the whip once in a while, but Peter was so excited by this time at the delay, that he began jumping

at the horses' chests and biting at them, and they balked so they would n't go at all. I suppose he meant well enough, and wanted them to go faster, but he only made matters worse; and when I got to the fire there was our rival company at work,—line stretched in,—and making all kinds of mean remarks as we pulled up at a hydrant. Even the Chief was there, and he gave our Captain an awful 'lacing'—wanted to know 'if we were all asleep down at our quarters,' and 'if we thought we were going to a funeral, that we took so much time!' This almost broke the old man's heart, and I tell you I never felt so cheap in all my life as I did when I found how late we were.

"When we got back to quarters again we all got a lecture from the Captain, and then he took me aside and said:

"'Joe, I don't like to do it, but we must get rid of Peter. He's bothering the horses a good deal, and I cannot take any more chances like that to-day. If I lose any more fires, you know what will happen.' And he looked at me hard, and I nodded my head; for I knew that meant a transfer for him to another company. Then he went on to say: 'You look for some nice person to give him to, some one who will take good care of him, and

some one who lives some distance from here. You know, if we give him to any one in the neighborhood he 'll be back in fifteen minutes. Meanwhile, he is not to turn out with us any more. So tie him up until you find some one to take him.' And so Peter was suspended from active duty.

"It happened that I knew the very person to turn him over to. There was a baker who delivered bread to some of the houses around here, and whose shop was quite a ways from here,—about thirty or forty blocks,—and in a street we were not apt to go through. He had taken a great liking to Peter, and had offered to buy him several times, and, of course, we had always refused. Peter had also gotten to like the baker very much, for he brought Peter, every once in a while, an odd kind of bread that Peter was very fond of. So that night, at my supper-hour, I took Peter down to his bake-shop, and transferred the smartest dog in the Fire Department from an engine-house to a bakery — a big come-down, I tell you.

"At first we missed him a good deal; but in a big Fire Department you get so used to changes and transfers from one company to another that in time you get so you don't miss anything or anybody. So it was with Peter; and though we all



“ EVERY TIME PETER GAVE A KICK, HE KNOCKED A PIE OR A PLATE
FULL OF CAKES OUT OF THE WINDOW.”

liked him, we knew he was with some one who would take good care of him. I went down to see him whenever I got a chance, and found he was getting along nicely, although I could see he was broken in spirit; and no wonder. Think of it! After the excitement of life in a fire-engine house, with the gongs a-hitting, the horses a-prancing, and the men a-shouting, to have to knuckle down to life in a dry old bakery, with nothing but a lazy Dutchman and a lot of crullers and cream-puffs for company, is enough to break any one's spirit, and I felt sorry for Peter.

“We had almost forgotten about Peter, and got used to not having him around, when one day a third alarm came in that took us out; and in getting to the station I had to drive through the street the baker's place was on. Never thought of it myself, but you can bet Peter had n't forgotten *us*; and when we made our appearance he showed up pretty quick. The baker told me all about it afterward, and this was the way it happened: Peter was lying asleep beside the stove in the center of the bake-shop, when all of a sudden he pricked up one ear, and then jumped on his feet and gave a bark. The baker was making out some bills behind the counter, and thought noth-

ing of it until the next moment Peter gave one jump, and was in the show-window among the pies and cakes and such like. The baker hollered to him to get out; but Peter began to claw at the window, and bark and howl. You see he could hear our whistle and bell and had recognized us. Then the baker made up his mind that the dog had gone mad, and was frightened and got up on a chair, and began to holler himself; and what between the baker and Peter there was a high old time in that bake-shop for a while. Every time Peter gave a kick, he knocked a pie or a plate full of cakes out of the window, until he had it clear of everything. Then we hove in sight, and through the side of the show-window he saw us and recognized me in the seat, and that settled it — no bake-shop could hold him then. He jumped back in the store, braced himself plumb in front of the pane of glass in the door, and when we were just about opposite he gave one last howl, and — crash! out he came, through glass and all.

“I heard the racket, and turned my head just in time to see him come flying out. I understood it all in a moment, and expected to see him roll over dead in the gutter. But not much! He came through so quick he scarcely got a scratch; and away he



"CRASH! OUT HE CAME, THROUGH GLASS AND ALL!"

went down the street ahead of us, barking at every one, and clearing the way just as he used to, and running around in a circle and jumping high in the air and cutting up gymnastics—and happy?—well, I just guess he was happy. Even the Captain heard him in all the racket behind the engine, and let up on the whistle long enough to holler ahead to me to look out and not run over him; but there was small fear of that, for he beat us by half a block all the way to the fire.

“When we got there we ‘stretched in and stood fast,’ as we call it, which means we stretched in the hose and got ready to go to work when so ordered; but they did n’t need us, for the fire was pretty well out then, and the third alarm had only been sent as a sort of precaution; so in a few moments the Chief ordered us back to quarters.

“When we were ‘picking up,’ or putting the hose back in the wagon, Peter was round among us like old times, and every one of the ‘gang’ had a kind word for him. He was cut a bit about the back with glass, so the Captain says: ‘Throw him in the wagon, boys, and we ’ll take him back to the house, and mend him up. I ’ll put him on probation; and if he acts right he can stay with us as long as he likes.’ And then he adds: ‘But

you fellows will have to chip in and pay for that pane of glass.' And we all laughed; for we were willing to pay for a whole window to get Peter back again.

"Well, I guess I've tired you almost out telling you about Peter's trials and troubles; but you see, sir, we are all so fond of him we never get tired talking about him to any one who cares to hear. Now he's settled down and got to be a regular fixture — no more pranks or tricks — steady as an old-timer. He got all over bothering the horses. Never did so after we got him back; and anyway, he don't get much chance now. We've got one of the quickest teams in the business, and they can race a mile with that old five tons of machinery behind them with any other team in the Department; and Peter has all he can do to keep from getting run over; so he gives them a wide berth. When we catch a fire in a butcher-shop he takes full charge, and we always turn it right over to him. He's very busy then. But when we strike a fire in a bakery — not much! You could n't get him to go near it for love or money. He always gets right up in the hose-wagon, on the driver's seat, and won't budge for any one; and if you go near him, after the fire is out, and make believe

you 're going to grab him and carry him in the bakery, maybe he won't growl and show his teeth!—well, I just guess! He is n't going to take any more chances of getting shut up with crullers and cakes for company.

“Cute? Well, I should say so — why, when Dauchey's wagon drives up now (that 's the baker who had him for a while), and Peter sees it, he has important business down in the cellar, and nothing can get him out of there except an alarm of fire. He knows that wagon well. I do believe if he was to meet it on the way to a fire he would go 'way around the block to dodge it. Why, say — I think —”

But I never heard what Joe thought, for at that instant a gong began to ring,—a dozen men seemed to drop from the very sky,—horses rushed past me,—there was a shout here and there, and a voice yelled: “632. Seventy-fourth Street and Eighth Avenue,”—the big doors opened, and before I could recover my senses the engine rolled by me, with Peter's biographer in the seat and two figures clinging on behind. It left a streak of steam and a strong smell of burning oil as it rolled out, and I could see one of the figures dash a great burning mass into the furnace of the engine. The

next instant a wagon full of partly dressed men dashed by me, and I was alone in the big house, the gong beating away with a peculiar jerking “bang, bang,” and a thin stream of steam oozing from the steam-pipe in the floor, over which the “five tons of machinery” had stood a quarter of a minute before.

A hat and coat and a halter-strap thrown here and there on the floor were all the evidence left of the fifteen or sixteen living, breathing creatures — men and horses — that had stood around me a few seconds before. The change had come so quickly I could scarcely realize it, and as I stepped outside, while a friendly neighbor closed the massive doors, I unconsciously looked about me for my friend and for Peter. But they were gone — had vanished from the street as quickly as they had from the house, and all that remained was a thin haze of smoke that filled the air with an odd, pungent smell. In the distance I could hear the clang of a bell, the shrieks of a whistle gradually dying away, and above all the shrill barks of a dog — cries so sharp and penetrating that I shall never forget them.

This was Peter Spots, fireman, on duty.

FLOATING FIRE-ENGINES.



WITH the growth of a large city, the protection of the water-front from the ravages of fire becomes an important study, almost as important as the study of fire protection for the city itself. Nearly every large city in the United States owes its growth to its nearness to some body of water, either lake, river, or sea, which offers exceptional advantages for the transportation of immense quantities of merchandise, and also provides harborage to all manner of craft engaged in this work.

This merchandise has to be stored somewhere during the process of loading and unloading these vessels, and the big warehouses and wharf-buildings along the water-front serve this purpose; but very often the most valuable cargoes are stored for a time in the flimsiest kind of buildings, needing but a spark to start a destructive conflagration.

As a city increases in size its importance as a freight-center grows in proportion; and the value of freight and merchandise stored alongshore, during transit, in a big city like New York, can only be imagined. No reasonable valuation can be given, for we should have to dive too deeply into the amounts of imports and exports to get anywhere near the truth; but it is safe to say that one hundred millions would scarcely cover the property exposed to the danger of fire, in a single day, among the piers and wharf-houses of New York City.

Nor is this danger confined to piers and wharf-buildings alone, but vessels in the act of loading and unloading valuable cargoes, the big bonded warehouses along the river-front, the docks for great ocean steamers, and the freight stations of many big railroads, are also exposed to this risk, and need to be well protected, for a serious fire among them would destroy more valuable property than perhaps a fire of the same extent in the very heart of the city.

Fires alongshore are difficult ones to handle. There is always more or less wind near the water; if a gale is blowing it seems to have twice as much force on the water-front, and a fire once started



— M.T.H. —

THE "NEW YORKER" AT FIRE DRILL.

here spreads very rapidly. Then fires on the piers, or in the wharf buildings, are usually very hard to fight; although there is plenty of water all around it is difficult to apply it to good effect. The land forces can only fight such a fire from one position—the street side; and if the wind is blowing inland it drives the smoke and fire directly at them, and makes it nearly impossible to hold this position. It is here that the floating fire-engine or fire-boat can do its valuable work; and New York possesses a fleet of such vessels—three boats that are fully able to cope with a fire of almost any size, whether it be among the shipping, along-shore, or anywhere in the harbor.

Foremost among these vessels stands the fire-boat *New Yorker* (officially known as Engine Co. No. 57), as she is without doubt the most powerful fire-boat afloat. The *New Yorker's* berth is at the Battery, where she lies beside a tasteful building erected by the Fire Department as a housing for her crew or company. This building is fitted up with all the requirements of an engine-house—bunk-room up-stairs, sliding-poles to make a quick descent to the ground floor, and a complete set of telegraph instruments, to inform the company of all the alarms throughout the city. She lies with

steam up, at all times ready to respond in an instant to any alarm, whether it be by telegraph or a cry for assistance from a burning boat in mid-river. She will dash up the river to attack a burning pier or warehouse, or down the bay to meet an incoming steamship with its cargo afire, with the same activity. Her powerful pumps make her almost invincible in any kind of marine fire, and she is also a valuable assistant to the land forces.

As she lies at her berth by the Battery, she attracts a great deal of attention from all new arrivals in the harbor, and on account of her formidable appearance she is usually put down as some new-fangled torpedo-throwing addition to our navy, for with the rows of brass-headed hose-connections along the side of the deck-house, and the vicious-looking stand-pipes, or "monitor-nozles," as they are called, mounted fore and aft, she certainly has a defiant and business-like appearance.

In build she looks like a rather handsome tug. She is 125 feet long, 26 feet wide, and draws about 13 feet of water. She is built of steel and iron throughout, making her thoroughly fire-proof, even the top of the wheel-house and cabin being made of a kind of cement as hard as stone. There is



GIANT MONITOR-NOZLE ON THE FIRE-BOAT "NEW YORKER."

little woodwork about her to ignite, and she is thus enabled to approach very close to a fire and deliver her powerful streams at short range. She has two very large boilers and four sets (eight in all) of vertical, double-acting steam-pumps, and one additional small direct-acting pump.

These pumps have a throwing capacity of fully 10,000 gallons of water every minute, and under the best conditions they have been known to reach 12,000 gallons per minute — over 6000 gallons more than any other fire-boat afloat. The water is drawn in through the sides of the boat, below the water-line, into what is known as the “suction-bay,” making an inner reservoir from which the pumps are fed.

There are about 10,000 little holes, $\frac{3}{8}$ -inch in diameter, bored in the sides of the boat just outside these suction-bays, and through these holes the water is drawn in, filtering it so that no foreign substance may get into the pumps. From the pumps it is forced into an air-chamber, thus equalizing the pressure all around, and then into a veritable water-main 12 inches in diameter, which runs all around the boat, between decks, and which supplies the various outlets. There are forty-two of these outlets (including the four stand-pipes or monitor-nozles), and they vary in size from 6

inches in diameter down to $2\frac{1}{2}$ inches (the size of the regulation fire-hose). Two of the monitor-nozles are mounted aft, on top of the cabin, and a big and a small one on top of the wheel-house. The two stand-pipes aft have $2\frac{1}{2}$ -inch nozles, the big one on the wheel-house having a $3\frac{1}{2}$ -inch opening. From the latter a solid $3\frac{1}{2}$ -inch stream can be thrown a distance of 320 feet, and if necessary this can be increased to a $5\frac{1}{2}$ -inch opening, and a mighty stream of water, having that width, can be sent thundering out into space over 200 feet. If you could hear this immense stream as it pours into the bay, like a miniature cataract, you could better appreciate the power of this remarkable boat.

No body of fire could very long withstand a deluge like this, and it requires only a few dashes of this massive stream effectively to quench a fire in the rigging or in the upper works of a ship. The small monitor-nozle mounted on the other side of the wheel-house has a $1\frac{3}{4}$ -inch opening, and a powerful stream can also be thrown from this, and of course to a much greater distance, for as the stream is reduced in diameter it can go a great deal farther.

To the outlets along the side of the deck-house and at the bow and stern are attached short lengths

of hose, to fight fire at close range. The pumps of the *New Yorker* are so powerful, and the pressure at these outlets is so great, that it would be impossible for men to handle these lines if there were not some sort of machinery to aid them, and therefore an appliance known as a "rail-pipe" is brought into play. This is something like a big row-lock, and is set in the gunwale in the same manner that a row-lock is set in the rail of a row-boat. It is fastened beneath the rail with a pin, and between the forks is swung an iron connection, oar-fashion, pivoted at the sides. The short length of hose is attached to one end of this connection, and a nozzle to the other, and with this device one man is able to control and direct the heaviest stream with ease. • The monitor-nozzles also can be managed by one man each.

The fire-proof construction of the *New Yorker* makes it possible to get very near a fire and deliver the powerful side-streams at short range; and should the heat become so intense that the men are not able to stand by the rail-pipes, protecting shields are brought into use, behind which they can direct the streams with comfort. These shields slide along, inside the rail, on a kind of railway, so they can be placed at any part of the boat; and

there is one on each side. They are made of two thicknesses of corrugated iron, with an air space between, thus preventing the inner lining from becoming heated. They are arched at the top, and in shape are somewhat like the shields used to protect the gunners while working at the rapid-firing guns on our modern men-of-war.

There is an opening at the bottom of these shields for the nozles of the rail-pipes to project through, and an oblong slot above for the fireman to look through and direct the water. With the aid of this protection for the men, and because of her own salamander-like construction, the *New Yorker* is able to sail up close to a burning vessel or pier and deliver a broadside of powerful streams where the ordinary wooden fire-tug could not come within fighting distance; and her ability to do this, and her immense pumps, make her without a doubt the most complete and effective marine fire-engine ever built.

A curious application of one of our national laws governing river boats is found in the *New Yorker*. Although she is thoroughly fire-proof in construction, and has ample appliances for throwing water in every direction, yet she is compelled to carry a number of the regulation

FIRE-BOAT "ZOPHAR MILLS."



fire-buckets, just as if she were an ordinary river or coast-wise boat. To make an exception in her case a new law would have to be passed to cover her case alone.

At fires in buildings along the river-front, or in streets near the river, the *New Yorker* can lie at a dock near-by and supply twenty effective streams; and, in fact, in capacity she is equal to that number of land engines. If the fire is some distance from the water-front, immense lengths of hose, six inches in diameter, can be attached to the outlets of that size in the sides of the deck-house, and by the aid of reducing connections can be reduced in size, as the lines are stretched into the fire, until they reach the regulation sizes — $2\frac{1}{2}$ or 3 inches at the nozzle end. She can supply six of these powerful streams effectively at a distance of one third of a mile from her location; and at big fires she becomes a valuable aid to the land force.

The *New Yorker* made her earliest appearance as a fire fighter at the burning of the Sound steamer *City of Richmond*, at her pier, foot of Peck Slip, on March 7, 1891.

She was called from her berth at the Battery, and, sailing up the East River, “opened fire” on the burning boat with a monitor-nozzle while still

in mid-stream. The stream struck the boat with terrific force, knocking the woodwork in every direction and breaking off strong uprights and supports as if they had been pipe-stems. There were several land companies working on the boat at the time, both engine and hook and ladder, and they dropped their hose and tools and fled in dismay at the beginning of this liquid bombardment, fearing for their lives.

The Chief in command at the fire rushed to the end of the pier and signaled to the *New Yorker* to shut off the stream that was creating such a panic. For a moment the order was misunderstood, and, thinking the stream was wanted in another position, it was shifted. In doing so it hit the end of the pier and almost lifted the roof of the wharf building at the end. Finally, it was understood on board the *New Yorker* that the big stream was not wanted, six smaller lines were substituted by her crew, and these greatly assisted the land forces in getting the fire under control.

There is no need for these floating fire-engines to carry "truck" companies along to "open up" for them so they can get at the seat of the fire, as with the land companies. One blow from one of these



THE FIRE-BOAT "WM. F. HAVEMEYER" BEGINNING WORK ON A BURNING PIER.

powerful streams, or even from one of the smaller streams, is sufficient to make a hole in anything, even an ordinary brick wall. When we know that a $3\frac{1}{2}$ -inch stream can be thrown a distance of 320 feet, or a 2- or $2\frac{1}{2}$ -inch stream nearly 400 feet, we can easily imagine what terrific force such a stream must have at a distance of, say, 50 feet; and I fear that the wall of bricks and cement has not been put up that could long withstand an onslaught from a hydraulic battery like this.

Next to the *New Yorker* comes the fire-boat *Zophar Mills*, a graceful-looking boat that lies at Pier 58, North River (near the West Fourteenth Street ferry). She is older than the *New Yorker* in build by about eight years, being put in service in 1882, while the latter boat was not built until 1890. In appearance she has the trim lines of a handsome river-boat, and does not look unlike one of the graceful river-tugs that we often see gliding up the Hudson with a procession of small boats in tow. She is painted white; and were it not for the formidable monitor-nozles mounted in the bow and on top of the cabin and the wheel-house, we should never suspect her to be capable of the active work of a floating fire-engine.

She is 125 feet long, 25 feet wide, and draws

about 11 feet of water. Her pumps consist of two duplex and one single pump, and they have a capacity of about 2400 gallons of water every minute, and under favorable circumstances have reached over 3000 gallons per minute. She can supply fourteen streams effectively, and from the stand-pipes at the bow and on the cabin, with a 1 $\frac{3}{4}$ -inch nozzle, she can throw the water 300 feet. The rail-pipes are used on the *Zophar Mills* as on the *New Yorker*. She also can supply powerful streams at land fires. At an experiment which was tried several years ago, in what is known as the "dry-goods district" (one of the most valuable of the business districts of New York City), when there was danger of a water-famine, the *Zophar Mills* pumped enough water into a portable water-tank, situated a mile away from her location, to supply four land-engines. This proved that with an aid like the *Zophar Mills* or the *New Yorker* it would be possible to extinguish fires in this district, even though the water in the city's mains was too low to supply the engines.

The *Zophar Mills* has seen active service and has been of great use in extinguishing several large fires. At the burning of a big wall-paper factory in West Forty-second Street, a few years

ago, she lay at the end of a long pier at the foot of that street and sent a powerful stream, through 2100 feet of hose, to the fire. At a serious factory fire, last summer, in Greenwich Street I saw a stream from this boat at work, and it was really fascinating to watch the mighty power of it. It took six or eight men to control the stream, and you could hear it thundering and crashing in the building, as it knocked packing-cases about and crashed through partitions and woodwork.

The crew of the boat are housed aboard in a bunk-room in the forward part of the cabin. There is a building on the dock beside which she lies; but this contains only an office, with the instruments for receiving the alarms; and part of it is used as a store-room for supplies, etc. This building is left in charge of the "house-watchman" when the boat responds to an alarm.

The *Zophar Mills* covers the North River in answer to signals from Fifty-ninth Street down to the Battery. She goes above Fifty-ninth Street as far as the city limits on special calls. The *New Yorker* comes up the North River as far as Twenty-third Street on the first alarm. They both respond very often to the same box. The *New Yorker* goes also up the East River to Grand Street

on the first alarm, where the third vessel of the fleet lies — the *Wm. F. Havemeyer*. This latter vessel covers the whole of the East River from Whitehall Street to the Harlem River, a distance of about nine miles.

The *Havemeyer* is the oldest of the three vessels, having been built in 1875. She is 106 feet long, 22 feet wide, and draws 10 feet of water. In appearance she looks like the ordinary harbor tug; and although she has seen twenty-two years of service she is still in excellent condition. She is fitted with four duplex fire-pumps that have a capacity of 2400 gallons of water a minute. She can deliver this water through stand-pipes and different sizes of hose, with nozzles varying from 1 inch to 3½ inches in diameter. She has been a valuable and efficient aid to the land companies, and has extinguished a large number of fires among the shipping.

These boats serve a double purpose, for they are not only effective water-throwing engines, but powerful tugs as well. When a fire is discovered on a ship lying among other vessels, a line is fastened to her, and she is towed out into mid-stream, where she cannot spread destruction about her. A few dashes from the powerful monitor-nozzle

soon puts out any fire in the rigging and upper works. If the fire has spread to the hold or has eaten in among the cargo, she is towed down to the mud-flats, near Liberty Island, or to the sand-bars south of Governor's Island, and beached. Then the big lengths of hose are passed aboard, large metal connections are fastened to the ends, and these are thrust into the hold, or into any compartment where there is fire, and she is soon pumped full of water and the fire drowned out. If a boat like the *New Yorker* has charge of this work it is quickly accomplished.

This saves the hull of the vessel and lessens the damage considerably, for the owners can have her pumped out afterward, and, the hull remaining intact, there is nothing but the burned interior to repair. If she were scuttled in mid-stream, the hull would interfere with navigation, and it would cost a large amount to raise the vessel; so it can be seen that these boats can render other services than that of extinguishing fires.

In fires on vessels loaded with cotton (they make ugly fires to handle), a lighter is usually brought alongside, and after the worst of the fire has been subdued the bales are hoisted out, one by one, and extinguished as they are brought out. By this

means part of the cargo is saved, for only the surfaces of the bales are on fire, and they can be picked over and re-baled, and sold again, while to fill the vessel full of water and drown out the fire would destroy the whole cargo; and a cotton fire might burn for months if fought in any other way.

On these boats the men's life is about the same as in the land companies. Two men are kept on watch at all times — one a "house-watch" and the other a "deck-watch." The house-watchman keeps track of the alarms and special calls, and the going and coming of members of the company to and from meals, and has charge of the "house journal." The deck-watch sees that other boats do not run into his vessel, and also keeps a sharp look-out for fires along the river. In the summer, when there are few fires, a position on the fire-boat is a pleasant berth, for there is plenty of outdoor life and sunshine in it; but in winter, when a keen nor'wester is blowing and every bit of spray freezes hard wherever it strikes, the land companies, no doubt, have the advantage.

Fighting fire along the water-front in mid-winter has all the dangers and the suffering of fire-duty ashore, and climbing up the sides of vessels and



THE "NEW YORKER" AND "ZOPHAR MILLS" AT WORK UPON A BURNING SHIP.

upon wharfs and piers, getting lines into position, when every bit of surface is covered with a thick coating of ice, is risky business; but, as one of the crew of the *Zophar Mills* remarked philosophically, "You have to take it as it comes—the fat and the lean together."

Brooklyn has two very efficient fire-boats, the *David A. Boody* and the *Seth Low*. The first has a capacity of 5500 gallons per minute, and the second is capable of throwing nearly 4000 gallons of water in the same time. With the consolidation of the two cities under the Greater New York charter, which takes effect January 1, 1898, all these vessels will practically belong to the same Fire Department, so that the "greater city" will have a fleet of six powerful fire-boats (there is one now in course of construction for the New York Department), with a combined water-throwing capacity of over 35,000 gallons of water per minute (estimating about 8000 capacity for the new boat)—averitable deluge!

But when we stand on the Brooklyn Bridge and can see the forest of vessels lying in Erie Basin, and look up and down the East River at the fringe of boats lying at both the Brooklyn and New York sides, with the thousands of craft coming and go-

ing every moment through this busy stream, we can easily imagine what dreadful havoc a serious conflagration would cause if it should once get any headway among this mass of shipping.

There are about eighteen miles of water-front on both sides of Manhattan Island, and about the same distance on the Brooklyn side, counting from Long Island City to Fort Hamilton—a big surface exposed to the dangers of fire, and a large territory to cover effectually; but when he reflects upon the protection given by the efficient fleet of floating fire-engines that I have just described, I am sure the average skipper need not be unduly anxious when lying at anchor or tied to a pier in the harbor of Greater New York.

THE FIRE PATROL



THE annual loss by fire in the United States amounts to over one hundred millions of dollars, and fully one half of this loss is caused by the water used in extinguishing the fires. Before the introduction in 1872 of controlling or shut-off nozzles used on the fire-hose, the percentage of loss by water was even greater—at least two thirds of the total loss. Previous to the introduction of this much-needed device, there was used what was known as an “open pipe,” a plain, open nozzle with no contrivance for shutting off the water. When it was necessary to shut off, the order had to be passed to the engineer, sometimes a long distance from the fire; and unless the nozzle could be thrust from a convenient window, the water would go pouring out, spreading destruction in all directions. In small fires, especially in “up-stairs” fires in private dwellings, or in business houses

stocked with perishable goods, such as feathers, silks, etc., the unnecessary destruction of property was very great.

To-day, fires are fought much more scientifically, and with a great deal more system, than were those of ten or twenty years ago; and officers in command of engine companies are usually very careful not to use any more water than is absolutely necessary. Nearly every hose-wagon in the New York Fire Department to-day carries three sizes of hose — the regulation size, 2½-inch, used at all ordinary fires; 3-inch (known as “third-alarm hose,” and used only at fires of considerable magnitude), and a small hose carried on a reel under the wagon. This hose is 1½ inches in diameter, and very easy to handle, and, on account of the ease with which any number of lengths of it can be carried about, it is that oftenest used at small fires in dwelling-houses, office-buildings, and flats. With a controlling nozzle on the end, the fireman can dash up several flights of stairs and into a bedroom or closet, and extinguish a small fire before it has time to spread, using the water only where it is absolutely needed. To drag the regulation size (it weighs about eighty pounds to the length) up and around winding stairways, etc.,



THE CHEMICAL ENGINE.

would take much longer, and perhaps give a fire time to get just beyond the point of easy control; besides, when the water is finally started, a great deal more is used by this hose than is necessary, especially in the case of a small fire. It has been practically demonstrated that a considerable amount of fire can be extinguished with a small amount of water applied effectively, and the use of the small hose has done much to reduce the damage by water at fires in dwellings and flats.

Then the "Chemical Engine," used considerably in the fire departments of several cities, has aided materially in lowering the loss by water at small fires. The preparation carried in the tanks of these engines has a double advantage; not only does it extinguish a large body of fire with the use of a small amount of water, but the liquid itself evaporates quickly, leaving very little "drip" in the apartments or floors underneath the fire.

The tanks of these engines are charged with a solution of bicarbonate of soda (baking-soda) and water, with a small cylinder of sulphuric acid suspended at the top. When the tank is inverted, this acid is emptied into the soda and water, and the mixture at once generates carbonic-acid gas at a great pressure. Charging the liquid with this

gas gives it the necessary pressure to drive it a considerable distance. The hose is coiled around a reel on top of the engine, and always connected with the tanks, so when the firemen arrive at a fire all they have to do is to run off as much hose as they need, dash up-stairs with the line, give the order to "dump" one of the tanks (there are two, carrying sixty gallons each), and they are all ready to go to work. The Chemical Engine, a picture of which is shown on page 219, has extinguished more than twenty-five fires of considerable size since it has been in service in the New York Department, a little over a year. It is stationed on the upper west side of the city, where there are a great number of dwellings and flats, and it has aided materially in keeping down the fire losses in that part of New York.

With the use of improved methods such as I have described, the losses by water at fires have undoubtedly been greatly reduced in the past few years in our larger cities, but it is also due to the efficiency of a separate organization, entirely independent of the Fire Department, that an immense amount of property is saved annually from destruction by water and by fire as well.

No doubt many people have noticed, when an

alarm of fire has been sounded and the fire apparatus arrives, a big red wagon dashing up, filled with men wearing red fire-hats and white rubber coats. They seem to be part of the regular Fire Department, and yet are not. They are dressed to all appearances like the regulation firemen, but their work is different, and few people know that they represent a separate branch of the fire service, and one entirely unconnected with the regular department.

In New York the organization is known as the "Fire Patrol," and it is controlled and supported by the Board of Fire Underwriters, acting for the various fire-insurance companies.

Practically, this detachment of the Fire Patrol, that responds at every alarm of fire, is simply the representatives of all the insurance companies put together. The companies are assessed proportionally for the support of this Patrol, and the immense amount of property saved annually by this efficient body of men proves that the money is well spent. This organization is found in nearly every large city in the United States, and is known variously under such names as Fire Patrol, Protective Department, and Salvage Corps; but their work in each city is practically the same.

The history of the New York branch of this novel addition to the fire service is not uninteresting, for its establishment dates back to the beginning of the present century, at which time it was known as the "Mutual Assistance Bag Company."

Originally this was a banding together of New York merchants for mutual protection at fires. Each member of the above "company" wore a "badge of distinction" at fires, consisting of a round hat with a black rim and a white crown bearing the initial letters of the organization, "M. A.", on the front. He was also armed with two stout canvas bags about two by three feet in size, having upon the outside his name in full and the letters M. A. surrounded by a circle. At each alarm of fire the members of the company responded with hat and bags; and if a fellow-member's property was in danger, saved what they could, and conveyed it in these bags to some place of safety.

We find among the list of members of this organization in 1803 such names as Beekman, Bleecker, Cruger, Cutting, De Peyster, Roosevelt, Stuyvesant, and others as well known; showing that many of the pioneer merchants of New York City were incorporators of this mutual fire-protective association. It is extremely interesting to



THE FIRE PATROL.

picture to the mind a group of these sturdy old Knickerbockers, working energetically amid the exciting surroundings of a fire, stowing goods and chattels away in canvas bags bearing names that have since become historically famous or prominently identified with the growth of old Manhattan.

In 1839 the present Fire Patrol was organized, practically evolving, so far as records show, from this same Mutual Bag Company. Their headquarters were on Dutch Street, where a small wagon, pulled by hand, was kept stored on the top floor of a building. This wagon was lowered to the street each evening at 7 P. M., and hoisted back again at 5 A. M.; between these hours the Fire Patrol men were on duty. Later the service was increased by the addition of another wagon and more men; and in 1870 the Patrol was reorganized and put upon a more substantial and more effective basis.

Three stations were opened in different parts of the city, and the companies, under command of three officers, were taken from the regular Fire Department. The most approved wagons and the best telegraphic instruments were introduced, and the finest horses obtainable were purchased for the service.

It is a question whether any branch of the regular Fire Department responded so quickly as the detachments from these different stations; and they presented a stirring picture as they thundered along on their way to a fire.

The service in New York has been still further enlarged, and to-day there are five stations, each containing two sections or two complete companies; so when one section responds to an alarm, another complete section (officer, men, and wagon) is left in quarters. Each station is manned by a captain, a lieutenant, a sergeant, and from sixteen to twenty-four permanent men, and is further strengthened at night by the addition of ten auxiliary men who can be called upon at any moment for service. These are men who work during the day at various other occupations, and are paid only for the time they are at fires. The permanent force is also recruited from these "auxiliary men."

A section of this Patrol responds to every alarm of fire in New York City. They are entirely independent of the department system, their only connection being a telegraphic one by which they get all alarms from fire headquarters. When they arrive at a fire their duty is to save property and protect it from damage by water. This they do by

removing it when possible, or by covering it in the buildings with immense oil-skin or tarpaulin covers. Twenty-four of these covers are carried in each wagon, and each measures fourteen by twenty feet. This makes 6720 square feet of covering material, and a great deal of furniture, household goods, or valuable stock can be protected from water with the first wagon-load of covers. When more are needed, another wagon-load is sent for.

These covers are not only spread over goods upon counters, tables, and so on, but they are fastened up at the sides of stores to protect property on the shelves. They can be hung over perishable goods in such a manner as to keep them practically intact while a serious fire is extinguished in the building above them. The Fire Patrol men also take charge of a building after a fire and clean out all the rubbish and water. They also board up broken windows and openings made in the dead-lights over cellars, cover roofs that have been either burnt or cut away during the fire, and leave a man in charge until the losses have been adjusted with the insurance companies.

They work in perfect harmony with the regular Fire Department, and very often are of great assistance to the latter, helping them to make open-

ings in the buildings so as to get the lines of hose in position, and aiding the regular firemen in other ways. Their record of life-saving at fires is a brilliant one, several of the most daring rescues having been performed by members of the Fire Patrol.

Some of the wagons carry a complete set of life-saving appliances, such as scaling-ladders and life-nets, and the wagons also contain a large assortment of the tools used at fires. Small fires are frequently extinguished by the Patrol men, for they are very often the first company to arrive, and with the two portable fire-extinguishers, carried on each wagon, a small fire can be put out before the arrival of the engines. Thus it can be seen that their value as an aid to the regular Fire Department is not to be underestimated.

Nor is it to be imagined for a moment that their work at fires is free from danger. They sometimes perform their special line of work under even more trying circumstances than do the firemen. At "top-story" or "up-stairs" fires in big warehouses filled with perishable goods, or in some of the big business buildings on Broadway (especially in the "Dry Goods District"), while the firemen are working above, or on a line with the fire, the Fire Patrol men are working *underneath*, making the most



FIRE PATROL MEN CARRYING COVERS INTO A BURNING STORE.

heroic efforts to save a stock sometimes fifteen or twenty times the value of that being consumed by the fire. They work in a smoke-charged atmosphere, spreading and hanging their covers while a scalding deluge of water blisters their hands, faces, and necks; for the tons of water being poured upon the flames have to pass through the fire before they descend, and often come down almost boiling.

An incident that occurred at a severe fire in a big business house some two years ago will give an idea of what the members of these protective departments have to face at times in order to save property. The fire broke out about midnight in the basement of an immense fire-proof building on Greene Street, extending a whole block from West Fourth Street to Washington Place. When the firemen arrived, half the basement, or practically half the block, was in flames, but on account of the fire-proof construction of the building the fire was confined to the basement part. The fire was burning so fiercely that the shutters of the basement windows were almost red-hot, and the dead-lights over the sidewalk were so heated that the tar around the glass was bubbling and running in streams across the walk to the gutter. The construction of the building was very substantial, and

it was almost impossible for the firemen to make an entrance ; indeed, the windows and dead-lights had to be broken in before they could secure access to the building and get to work.

The basement was occupied by a straw-hat manufacturer, and the captain of No. 2 Fire Patrol (one of the first companies to arrive) felt sure there must be a sub-cellar stored with a most perishable stock. How to reach it before the firemen began to throw water upon the fire was the question. It seemed well nigh impossible to get into the basement through the regular entrances ; and to venture in while the fire was raging as it was seemed almost foolhardy, but he determined to reach the cellar at any cost and find out what it contained. After considerable effort he succeeded in making an entrance on the north side of the building (the main body of fire was on the south end), and groping his way through the smoke and darkness, lantern in hand, he found himself in the basement. The heat was intense and the air stifling. Ahead of him in the corner of the basement he could see the flames rolling about, crackling and roaring as they devoured case after case of goods. Peering through the thick atmosphere, it was some time before he could discover anything

that looked like the entrance to the cellar; but finally he spied a door about midway in the basement that he felt sure must lead to the sub-cellar. It was dangerously near the roaring furnace ahead of him, and he thought to himself: "Can I reach that and get into the cellar and back again before the fire cuts me off?" He made up his mind at least to make the effort. So he walked cautiously across the basement floor toward the door, keeping his eye on the fire all the time. It grew hotter and hotter as he advanced, and the perspiration was pouring from his face in great beads, and he was almost suffocated when his hand finally rested on the knob of the door. He opened it and stepped inside. What a relief! The transformation was almost marvelous, for the change from the heated atmosphere of the basement to the cool air of the cellar was like stepping out of a red-hot oven into an ice-box.

He descended the cellar stairs rapidly, and holding his lantern aloft, looked about him. It was as he had suspected. The cellar was filled with immense cases of straw hats, and although, owing to the fire-proof floor, the fire probably could not descend, when the many streams got to work the damage by water would be enormous.

He hastily ascended; peering cautiously out of the door, he found the fire had not advanced any further. He then made his way quickly through the dense smoke to the street.

He reported to the superintendent of the Patrol, who had arrived by this time, the fact that he had been in the basement and his discovery in the cellar, and told him he could do a great deal of good if he could only take the men down, and cover up the stock. The superintendent was at first loath to let him do so, for the situation looked too dangerous; but finally he gave permission, and the captain gathered his Patrol men about him, and armed with covers they followed him to the sub-cellar to "cover up."

By this time the companies that had responded to the second and third alarms sent out were at work, as well as companies that had been ordered into the basement; and the air in the cellar was not as pleasant as when the captain had first descended. The fire had begun to "settle," and the sub-cellar was filled with a thick, murky smoke, while a constant, scalding drip was falling from the ceiling.

In this dim, stifling atmosphere the Patrol men went to work with a will, spreading their water-



IN THE CELLAR WITH THE FIRE.

proof covers over case after case of valuable stock, while overhead they could hear the roaring and crackling of the flames, the splashing of the many streams as they were dashed about, and now and then a dull crash as some heavy piece of masonry was crumbled away by the heat. These were conditions under which few men would care to labor, and yet the members of the Patrol were working energetically, scarcely giving a thought to the danger that hung above them.

At any moment the fire raging in the basement over their heads might get beyond the control of the firemen battling with it, and, spreading, cut off all means of escape, or the steel and iron structure of the building, warped and twisted by the dreadful heat it was being subjected to, might give way and send floor after floor loaded with heavy merchandise crashing down upon them. This and a hundred other possibilities menaced them while they labored in the murky cellar; and when the work was done 101 covers had been spread, and property valued at over a hundred thousand dollars had been saved from destruction.

When No. 2 Patrol returned to quarters the next morning (for it was nearly morning before they were through), there was scarcely a member whose

neck, hands, and wrists were not scalded and blistered to a painful degree, for they had worked during *nine hours* in a veritable shower-bath of *boiling water*, from which there was no escape.

Nor do they always get off so easily as in this case; many members have been maimed and injured at fires while in their endeavor to protect property. This little clipping, taken from a New York paper during 1893, tells how one brave man lost his life in the service, and the history of the organization has many similar cases.

FIRE PATROLMAN KILLED

August Milner of Fire Patrol No. 1 was killed while on duty at a fire last night at No. 436 Pearl Street. The building, a picture-frame factory, was stored with naphtha and varnish, which made a fierce blaze. Patrolmen Milner, Albert Donovan, James Burnett, George W. Waddy, and Theodore F. Alling, all members of No. 1 Patrol, were at work on the ground-floor covering up costly picture-frames with tarpaulin, when the ceiling came down, together with a lot of picture-frames stacked against the wall. Milner was pinned down by the debris with Donovan.

The flames were spreading rapidly, but the members of Hook and Ladder Company No. 10 rushed to the rescue.

Frank Orgne of No. 10 pulled Donovan out. The hose was turned on the debris to prevent the flames from reaching Milner, who was completely covered. His would-be rescuers had to retreat to save their own lives, leaving him to his fate. It was said by Milner's comrade that he must have been killed by the falling debris.

At fires in the homes of the poor these detachments of the Patrol work just as earnestly and conscientiously to save property as they would in the expensively furnished mansions of the rich. At tenement-house fires they are of great service. First they aid in getting the people out; then, gathering the goods together, the Patrol men protect them from water with tarpaulin covers. The majority of these fires break out in the basements or cellars; then, following the air- and light-shafts to the top floor, they spread, and do the greatest damage in the upper stories. To extinguish these fires, the other floors below have to be flooded, and were it not for the Fire Patrol in many cases the poor families would lose everything they owned. As one of the captains of the Patrol remarked: "Why, it would do your heart good if you could hear how profuse these poor people are in their thanks, and the blessings they shower on us when they find we've saved their things. They go run-

ning around, wringing their hands and crying: 'Everything 's lost! Everything 's lost!' and then, when the fire is out, we lead them back and show them their things, as dry as a chip under the covers, and—well, say—there is n't anything they would n't do for us! Half the time they 're not insured, and it is n't our business to protect people who are not; but we 're not supposed to know everything, and our orders are to protect property first and find out whether it is insured afterward; and it is not our fault if we save the little all of a lot of poor creatures who half the time have n't a change of clothes to their back. You bet, we get to work just as quick in a tenement-house fire as in a big house on Fifth Avenue, and we do the same work in both places, no matter whether it 's for the rich or the poor."

At serious fires in the Dry Goods District, or in big buildings and stores filled with valuable stock, the efficient work performed by the Patrol can scarcely be estimated. Most of these fires also spread to the upper floors, and about the only thing that can extinguish them effectively is the "water-tower." This appliance is the greatest friend and the greatest enemy that the insurance companies have; for while it puts out a big fire



A WATER-TOWER AT WORK.

quickly, at the same time it destroys valuable property with water. When a fire is raging in the upper part of a high building the water-tower can throw an immense stream practically on a line with the fire, and it can be driven clear through a floor or loft, really washing the fire out; but the tons of water descending through the floors below play sad havoc with a valuable stock; and in a structure filled with silks, laces, dry goods, upholstery materials, or similar commodities, it can be readily seen what an immense amount of damage would be done if it were not for the quick covering of goods by the Patrol. There is no doubt that the annual saving to the insurance companies by the New York organization amounts to millions of dollars, so it can be seen that its existence is not in vain.

In the picture on page 243 the water-tower is seen at work at a recent big fire in New York; and the picture also shows the stand-pipe or monitor-nozzle at the end of the wagon that carries the tower. Two "street-lines" are also at work, striking the fifth and sixth floors respectively. While more or less of the water sent from the street-lines is spent on the outside of the building, the stream from the tower goes straight in through the fifth-

story window, and very little of the water is lost outside. At a rough estimate, there are about 10-000 gallons a minute passing through these four streams, and some idea of the drip within the building can be formed from the miniature Niagara pouring off the shed outside. Had the lower part of the building been filled with dry goods or other perishable stock, the loss would have been enormous; but as it was filled with wines and liquors in cases, the loss, though heavy, was light in comparison with the amount of water used.

With a perfect Fire Department such as New York possesses to-day, and an efficient auxiliary force in the Fire Patrol that I have just described, the wholesale losses by fire of former years ought to be soon a thing of the past in this great city. With the two forces combined, we have undoubtedly before us the greatest fire-service of any city in the world. Yet, when we consider that in 1896 there were 4309 alarms of fire in New York City, and that out of this number 3890 were actual fires, we can easily realize that there must be a perfect organization to combat such a foe. That New York possesses such an organization I firmly believe.

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